New Orleans Medical
and
Surgical Journal

Vol. 94 MARCH, 1942 No. 9

HEALTH FOR VICTORY*

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The opportunity to speak before a group of earnest, efficient and enthusiastic workers such as comprise the Louisiana Public Health Association is indeed a happy occasion for me. Mississippi has no closer neighbor than Louisiana and consequently we have much common ground for public health relations. I know you do not care to listen to a sales talk on public health values, for people who have been in the profession but a short time and have followed its principles seriously and devotedly do not have to be sold on their worth. What we might consider is how to put to the most productive use the gains which have been made in recent years.

Certainly it is true that no group can make a greater contribution to national defense than public health workers. And this is truer today than ever before for there has developed increasingly better organization, more adequate knowledge and skill, and better trained personnel to execute this knowledge.

No nation can profess strength whose people are physically unfit for efficient service. Consequently any intelligent defense effort must give first consideration to the health status of both its civilian and military populations. The present conflict is no ordinary war. The total capacity to produce and total efficiency are the primary issues involved in this mighty military effort, and it goes without saying that the forces possessing these qualities in greatest abundance will ultimately triumph. This means that the health and efficiency of the industrial worker and of all civilians whose responsibility it is to produce modern military equipment are equally as important as the health and efficiency of those who carry the rifles, pilot the planes, or drive the tanks. In the light of all this, public health assumes a role of importance second to none in developing military strength. And military strength, we must not forget, depends upon civilian strength and morale. If ever we needed to put to work fully those fundamentals of public health which we know will promote and conserve the health of our 131,000,000 citizens, we need to do so now.

Total defense presents tremendous problems which we can hope to solve only through intelligent cooperation, careful planning, and a willingness to sacrifice. The whole job is one of teamwork and means sharing the responsibility for the common good.

We know from long experience that mobilization of troops increases the incidence of communicable diseases. Therefore, precautionary measures are being taken and programs are being developed which will reduce preventable illnesses and disabilities. Experiences gained during the previous World War will help us to cope with the present emergency more efficiently and to avoid many mistakes. In fact, ironic as it may seem, tremendous impetus was given both medical and public health advances during the first war which tend to offset or compensate in some measure for the great loss of life and destruction of property. This seems to bear out a statement

*Presented before the Louisiana Public Health Association, New Orleans, Louisiana, December 8, 1941.

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once made by the illustrious Dr. Charles Mayo, that "When the institutions, the freedom, the wealth, the health and the very lives of a people are jeopardized by destructive forces from without, the primal instinct of self preservation becomes a spur to endeavor and accomplishment"—and war, tragic as it is, seems to leave some good in its wake.

At any rate, we are reminded that the 1914-1918 war introduced a new era in preventive medicine, public health and sanitation and that many of the most effective public health procedures of today evolved from this period. For instance, trench fever, which had handicapped the British Expeditionary Force, was brought under control as a result of advanced sanitary knowledge which makes it possible to inhibit its development and prevent its spread. The efficacy of immunization procedures such as typhoid vaccine and tetanus antitoxin to prevent typhoid fever and tetanus was definitely established. Botulism was discovered to be caused not only by contaminated meats but by improperly canned vegetables which had become infected. There was acquired increased knowledge regarding the dangers of overcrowding and the importance of isolating patients and segregating contacts exposed to meningitis, influenza, and other infectious diseases.

Among the outstanding contributions to preventive medicine was the Army's candid system of venereal disease control, which helped to inhibit the spread of these disabling afflictions among the troops. Today, civilian populations are approaching the problem in somewhat the same manner after a Rip Van Winkle period of indifference. People, at long last, have awakened to the fact that syphilis is a disease problem, not a disgrace, and that by patient treatment it may be cured. Enlightened public opinion now encourages educational and other practical control measures.

No small development arising out of the 1914-1918 war was the new interest in child welfare and in periodic physical examinations. This was doubtless due to the realization that many of the physical defects disclosed by military examining boards might have been prevented by intelligent care and training during the early years of life. These and many other advances were realized, making it possible for both medicine and public health to achieve new heights in administering to the health needs of the country in the years which followed.

Notwithstanding all these accomplishments, the rate of present-day rejections of young men for military service remains high. Diagnostic technics are of course more accurate than during the previous war, enabling more physical defects to be detected. Nevertheless the whole deficiency points to the fact that the knowledge which has been gained for promoting health and preventing disease has not been wholly applied. Many people have been astonished at the amount of disability which the present emergency has disclosed. Some even go so far as to question the total efficiency of public health work. They fail to recall how often public health has pointed the way to correction and prevention of defects and how often large numbers ignored the measures which they were told were necessary for achieving optimal physical fitness. Ignorance, indifference, procrastination, and economic reasons may be regarded as the major obstacles which prevented a larger number from benefiting from the newer health knowledge of this period. It must be recognized that while public health has achieved amazing results in controlling communicable diseases and in lengthening the span of life, it unfortunately cannot protect an individual against many preventable conditions unless he gives full cooperation. In venereal disease control program there is a good example of this, and of course there are many others. In other words, "We can make certain that the milk delivered to an individual is grade A, but we cannot make certain that he who drinks it has a grade A mouth." A better educated public, better trained health personnel, and more adequate financial support of the public health program will eventually make for the solution of such problems.

In the meantime, we cannot forget that we are in the middle of an emergency and

cannot wait for the more ideal conditions for promoting national health and strength. As I have already pointed out, there is a job for everyone and we cannot hope for total success in our efforts if there are many laggards.

Public health workers are more than glad to do their share in meeting the responsibilities of these times, and the medical and dental professions have demonstrated a like spirit. However, it cannot be emphasized too strongly that service on the home front is equally as important as service in the Army. National defense, of course, should have priority over everything else, but it behooves each of us to remember that a major phase of this defense is in holding the health gains already made. Those of us who have witnessed the amazing growth of public health services in recent years and understand the need for perpetuating and extending these services, are deeply concerned at this time over the steady depletion of trained personnel in the civilian public health forces. On many of these individuals there have been spent substantial sums of money to train and equip them for the efficient performance of their respective duties. We have expected that we would have to make some sacrifices to meet military needs, but it seems necessary to insist that there be a more equal distribution of all medical, dental, nursing and public health facilities or else the consequences may be regretful. At a special conference of the State and Territorial Health Officers in Washington last September, it was recommended that in plans for national defense the work of the official public health agencies be recognized as an essential part of the national defense program.

Until these problems can be solved, it remains to be seen just what can be accomplished by the present limited personnel. To the many public health needs which existed before the emergency have been added a multitude of new needs. The large concentration of troops in camps and cantonments and the tremendous influx of new population attracted by industrial expansion have created problems of great magnitude in communicable disease control, sanitation, housing, medical and hospital facilities, education, recreation, and in many other related conditions essential to social development and public welfare. Legislation is pending in Congress which would help to meet some of these needs, but public health cannot hold back for final action. Our contribution is needed now, and since we cannot hope to cover all the ground the logical procedure is to begin with the most urgent needs and work on down the list, achieving all we can. Here are the things to which we should give first attention:

1. *Communicable disease control,* with especial reference to venereal diseases.

2. *Sanitation.* The very elemental phases of health work need more emphasis, particularly ordinary sanitation, safe water and milk supplies, protection of the food supply, sanitary methods of excreta disposal, and drainage.

3. *Industrial Hygiene.* With production of tools and equipment a primary essential to defense, the health of the worker assumes a place of first importance. It must not be neglected.

4. *Rehabilitation.* So much could be said on this subject. Based upon the large number of rejectees there have been—and it is felt that they represent a good cross-section of the total population—it goes without saying that some action must be begun immediately to boost the physical status of these rejectees where possible.

The lesson that public health gains from the startling discovery that so many are incapacitated for active military service is that mere absence of disease does not imply that one is enjoying maximum physical efficiency and well-being. Consequently, the future will likely see greater emphasis than ever before on promotion and conservation of health as well as prevention of disease. It is time to begin applying on a universal scale the excellent store of knowledge that has been accumulating for some years for practicing personal preventive medicine and hygiene. That knowledge,

properly recruited, will strengthen immeasurably the nation's defenses. It remains for public health to asume the leadership in putting it to work, instilling in people a greater sense of personal responsibility for health.

In spite of the chaos of this period there are wonderful opportunities for those with public health training and experience to make lasting contributions for the betterment of mankind. Think how much it would mean if we could liberate him from the primitive and elementary bonds of poverty, ignorance and disease. Public health has had a dramatic history but I do not believe it ever had more to offer than it does today. It is for you and me and other co-workers to put our shoulders to the wheel and work unceasingly until we shall have achieved the goals we know are within reach. Such is democracy!

BIBLIOGRAPHY

Darnall, J. R.: Contributions of the World War to the advancement of medicine, J. A. M. A., 115:1443, 1940.

Transactions of the 29th Annual Conference of State and Territorial Health Officers with the U. S. P. H. S., April 29th-May 2, 1941.

CORONARY OCCLUSION IN PRIVATE PRACTICE*

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The purpose of this paper is to review a series of consecutive cases of coronary occlusion seen in private practice in a city of 30,000 inhabitants and its rural and semi-rural surrounding territory, and to discuss them in reference to occupation, age, longevity, time of onset, and prognosis.

OCCUPATION

In table 1, the occurrence of coronary occlusion as to the occupations of its victims is considered. It is noted that 50 per cent of the cases occurred in office workers and white collar executives, 30 per cent among those doing manual work, and 19 per cent among housewives. Formerly, it was taught that the disease was almost limited to the office worker. Today with better means of examination and better educated physicians, it is diagnosable in all walks of life. Thus every physician, regardless of his location, or type of practice, will encounter the disease. The table is self-explanatory.

TABLE 1

CORONARY OCCLUSION AS TO OCCUPATIONS

	Cases
Physicians	9
Attorneys	4
Bank clerks	4
Clerical	14
Planters	8
Salesmen	4
Merchants	3
Executives	4
	50
Civil engineers	3
Aviator	1
Mill workers	11
Electricians	3
Painter	1
Blacksmiths	2
Farm laborers	7
Carpenter	1
Ice plant	1
Rural mail	1
	31
Housewives	19
White collar	50
Manual labor	31
Housewives	19
Total	100

AGE OF ONSET

In reviewing the occurrence of onset of coronary occlusion according to age, it is noted that five cases or 5 per cent occur in the lower age group, 30 to 35 years, and that they are equally divided between those doing indoor and outdoor occupations. It is also interesting to observe that 33 or 37 per cent occur under the age of 50 and again it is noted 16 cases occur in indoor occupations and 17 cases in housewives and outdoor workers.

*Read before the sixty-second annual meeting of the Louisiana State Medical Society, Shreveport, April 22, 1941.

TABLE 2

CORONARY OCCLUSION ONSET ACCORDING TO AGE

Ages	No. of cases
30-35	5
35-40	3
40-45	11
45-50	13
50-55	15
55-60	20
60-65	17
65-70	7
70	9
	100

In reviewing the cases as to onset according to months, it is noted that in the 86 cases recorded, the occurrence predominated in the colder months, that is, 50 cases, or 58 per cent, occurring in the four months of January, February, November and December. Thus cold weather undoubtedly influences the onset of the occlusion. Whether it is due to the individual's increased activity or increased blood pressure in cold weather is a matter for speculation.

It is also seen that in the 59 deaths recorded by months that 34, or 49 per cent, occurred in the four colder months, January, February, November, and December. Thus again cold weather has a definite bearing upon the mortality rate.

TABLE 3

CASES AS TO MONTHS

Onset	Rate	Deaths
January	16	10
February	9	7
March	4	2
April	2	5
May	6	3
June	7	4
July	4	1
August	4	4
September	5	3
October	4	3
November	8	3
December	17	14
	86	59

In table 4, the time of onset of 55 attacks is recorded and it is noted that no time of the day predominates:

TABLE 4

TIME OF ONSET 55 CASES CORONARY OCCLUSION

Time of day	Attacks	Per cent
6 a. m. to 12 noon	11	20
12 noon to 6 p. m.	19	34.1
Total 6 a. m. to 6 p. m.	30	54.1
6 p. m. to midnight	11	20
Midnight to 6 a. m.	14	25
Total 6 p. m. to 6 a. m.	25	45.9

TABLE 5

ACTIVITY AT TIME OF ONSET OF SYMPTOMS

Activity	No. of cases	Per cent
Asleep in bed	19	25.7
At home rest	21	28.5
Walking	8	10.9
Driving car	3	4.0
At work	8	10.9
Excitement or exertion	4	5.4
Gradual onset unknown	11	14.9
No records	26	

It is interesting that the onset in over 50 per cent of the cases occurred when the heart was at rest and that in only four cases, or 5.4 per cent, was excitement or exertion considered as an exciting cause or precipitating factor.

I have often wondered, in some of these cases occurring in sleep, if there may not have been a small occlusion when active and that the thrombus was slowly progressive and during the rest or sleep extended far enough to occlude a larger vessel and cause noticeable symptoms and the onset attributed as occurring at rest.

TABLE 6

ONSET CORONARY OCCLUSION

Predominating symptoms	No. of cases	Per cent
Cardiac pain	58	66
Dyspnea	15	17
Digestive (gastric)	11	12.5
Gradual	3	6
Not charted	13	

The above table gives the predominating symptoms of onset, revealing that one-third of the patients have as a predominating symptom, one that is not cardiac pain. This must be borne in mind in the differential diagnosis of abdominal discomforts and of dyspnea. It is not the purpose of this paper to deal with the diagnostic criteria but to review the predominating symptoms.

Having survived the acute attack, the patient enters into a state that may be referred to as chronic coronary occlusion. We ask ourselves, and are asked, what will be the outcome of the case and how will it terminate? That is, will the patient have

another attack or suffer chronic cardiac failure.

It is noted that in 36 deaths in patients who survived the initial attack that 14 suffered a sudden death in a recurrent attack, and that 20 suffered chronic cardiac failure, five taking one month to die after the onset of decompensation, and 15 patients suffering three to six months of decompensation, before death.

TABLE 7

DURATION 36 CASES SURVIVING INITIAL ATTACKS OF CORONARY OCCLUSION

	Duration	No. of cases
Cardiac failure	1 month	5
Cardiac failure	3-6 mo.	15
Sudden or recurrent attack		14
Suicide		1
Carcinoma of uterus		1

THERAPEUTIC REGIMEN

In the series mentioned the following therapeutic routine was followed:
Acute attacks:

(1) Morphine in large dose for relief of pain, or rest.

(2) Glucose intravenously if systolic blood pressure below 100 mm. Hg. or if pulse pressure 10 mm. or less.

(3) Rest in bed from four to 12 weeks.

(4) Digitalis was not used except in a few acutely decompensated cases, the mortality being high.

(5) Theophyllin or similar product orally or intravenously. I believe these are definitely beneficial.

(6) Oxygen by nasal catheter was used in 15 patients and I believe in 10 instances was life saving.

(7) Coramine for dyspnea; this was given in 5 c.c. doses orally every four hours. In a few patients, this had to be discontinued because of nausea.

(8) General dietary and routine care.

With the above there were 25 deaths or a 25 per cent mortality immediately or within the first month.

LIFE EXPECTANCY

As for the life expectancy, it is noted that 25 patients died suddenly or within the first month and that 18 lived five or more years. In the series, 12 patients are still living past five years and four past 10 years. It is probable that many of these will live a normal expectancy.

CORONARY OCCLUSION LONGEVITY

	One month	Years					
	or less	½	1	2	3	5	7
39 living		3	8	8	8	8	4
61 deaths	25	8	11	8	3	4	2
Total surviving		75	64	45	29	18	6

RETURN TO WORK

In reviewing the composite chart, it is noted that of the white collar positions, seven returned to limited work, 11 returned to full time gainful occupations. In those doing manual labor, 10 returned to a position of less work and two returned to hard labor.

In this series, there are two patients who have apparently made a complete recovery from clinical, x-ray and electrocardiographic standpoint; one, a bank clerk, the other an attorney; both have lived over five years and should have a normal life expectancy.

I would like to bring to your attention one thing that has given considerable trouble; that is the use of morphine. It should be used freely during the acute attack, but the patient should be weaned from the morphine as soon as possible to prevent addiction, developing because the local physician has decided that the patients did not live long and were entitled to relief. Then to the surprise of the physician the patients lived over five years as chronic addicts, and it is extremely difficult to treat the addict who has a cardiac condition.

COMPOSITE TABLE

Occupation (males)	Deaths											Living							Return to occupation	
	No.	1 Wk.	1 Mo.	6 Mo.	1 Yr.	2 Yr.	3 Yr.	5 Yr.	7 Yr.	10 Yr.	Total	Less 1 Yr.	1 Yr.	2 Yr.	3 Yr.	5 Yr.	8 Yr.	Total	Part Time	Full
Physician	9	....	1	1	....	2	1	1	1	..	7	..	..	..	..	2	..	2	1	1
Attorney	4	1	2	..	....	..	..	..	..	..	3	..	..	..	..	1	..	1	..	1
Bank clerk	4	1	..	..	....	1	..	..	..	..	2	..	..	..	1	..	1	2	1	2
Clerical	14	1	1	..	2	1	..	..	..	..	5	2	2	2	1	1	1	9	3	2
Planter	8	2	1	..	....	1	..	..	..	..	4	..	1	1	1	1	..	4	..	1
Salesman	4	....	1	..	....	1	1	..	..	..	3	1	..	..	..	..	..	1	..	3
Merchant	3	....	..	..	1	1	..	..	..	..	2	..	..	..	..	2	..	2	1	1
Executives	4	1	..	..	....	..	..	..	..	1	2	..	..	..	..	..	1	1	..	1
Total	50	6	6	1	3	7	2	1	1	1	28	3	3	3	3	7	3	22		
Civil engineer	3	....	..	1	....	..	..	1	..	..	2	..	..	..	1	..	..	1	1	..
Aviator	1	....	..	..	....	..	..	..	..	..	0	..	..	..	..	1	..	1	1	..
Mill worker	11	3	..	2	3	1	..	..	..	..	9	..	1	1	..	..	..	2	1	..
Electrician	3	....	..	..	....	..	..	..	..	..	0	..	2	1	..	..	..	3	2	1
Painter	1	....	..	..	....	..	..	..	..	..	0	..	1	..	..	..	..	1	1	..
Blacksmith	2	1	..	..	....	..	..	..	..	..	1	..	..	1	..	..	..	1	1	..
Farm laborer	7	3	..	2	1	..	..	1	..	..	7	..	1	..	..	..	..	1	3	1
Carpenter	1	....	..	..	....	..	..	..	..	..	0	..	..	..	..	..	..	0	..	..
Ice plant	1	....	..	..	....	..	..	1	..	..	1	..	..	..	..	..	..	0	..	..
Rural mail	1	1	..	..	....	..	..	..	..	..	1	..	..	..	..	..	..	0	..	..
Total	31	8	..	5	4	1	..	3	..	..	21	..	5	3	1	1	..	10	..	..
Housewife	19	2	3	2	4	..	1	..	..	..	12	..	..	2	4	..	1	7	..	..
Grand total	100	16	9	8	11	8	3	4	1	1	61	3	8	8	8	8	4	39		

DISCUSSION

Dr. Ernest Young (Arcadia): When these people get over the attacks, they want to know when they can go back to work. Is there any way we can tell when people can go back to work?

Dr. M. W. Hunter (In closing): In answer to Dr. Young's question, time did not permit me to go into minute details, but from the composite chart it is noted that many, that is, that many in the white collared positions return to work—eleven to full time and seven to limited work. In those doing manual labor, ten return to limited work and two to full time labor. Two patients were seen who, from the clinical and electrocardiographic standpoint, made a complete recovery, one a bank clerk, the other a laborer. Both are still living and have lived six years.

The question of when should they go back to work depends upon how much exercise they are taking about the house. Quite frequently, they are doing more about the house when supposed to be resting than they would be back in the office.

TACHYCARDIAS

DIAGNOSIS AND TREATMENT*

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A heart rate of one hundred or more beats per minute in adults is the basis for the diagnosis of tachycardia. There are grades as slight, moderate and severe tachycardia. The origin may be in the sino-atrial node, in an ectopic or circus mechanism located in the atria, in the junctional tissues or in a ventricular focus. The rhythm of the usually designated tachycardias is perfectly regular but may seem to be irregular in occasional instances of short paroxysms

*Presented before the fall meeting of the Fifth District Medical Society at Monroe, Louisiana, November 24, 1941.

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interspersed between normal beats. The tachycardia of atrial flutter must be differentiated from sino-atrial tachycardia and from some slower ectopic tachycardias by indisputable electrocardiographic records.

The clinical diagnosis may be made at times on the basis of surrounding circumstances, general physical findings, body temperature, metabolism rate, status of the circulatory equilibrium, the blood pressure, the heart rate as determined by full minute counts at intervals, and by the effect of carotid sinus pressure for reflex vagus nerve stimulation. The final diagnosis often, however, rests with the electrocardiographic study.

SINUS TACHYCARDIA

Sino-atrial tachycardia generally is the result of depression of vagal tone on the sino-atrial node usually in combination with sympathetic stimulation, rarely either one alone. In rare instances tachycardia is a purely psychogenic affair. Occasionally it is a manifestation of hyperthyroidism or severe myocardial insufficiency with backward or forward failure. Most often, however, tachycardia is a part of the increased metabolism of physical exertion or fever incident to an infectious disease.

There is an acceleration normally of eight to ten beats for every degree of fever. Diphtheria and poliomyelitis may produce disproportionate tachycardia as a result of toxic vagus paralysis. Vagus inhibiting drugs, atropine and adrenalin, administered in full dosage may produce a considerable tachycardia. Decreased return of venous blood to the heart as in shock or hemorrhage and in neurocirculatory asthenia results in tachycardia. The presence of such conditions should be looked for. A history of gradual rise in the heart rate is a most significant clinical diagnostic fact.

The heart rate with sino-atrial tachycardia rarely rises above 160, very rarely to 180 except in moribund patients. The electrocardiogram is usually easily recognizable with characteristically clear-cut P waves followed in 0.12 to 0.20 seconds by normal QRS and T waves and a very short T-P interval. The rate and rhythm are regular but usually may be slowed slightly, a matter of five to ten beats, by indirect carotid sinus or ocular pressure vagus stimulation.

Pilocarpin in 1/8 grain dose subcutaneously, acetyl-beta-methylcholine in a 50 mgm. dose subcutaneously and prostigmin in 1 mg. (2 c.c.-1/2000) intravenously may have similar vagotonic effects and sometimes slow the heart rate. Digitalis or quinidine sulfate by oral administration usually have no significant immediate effect upon the rate in sino-atrial tachycardia, except indirectly by improving the circulation and slowing the heart. Digitalis administered intravenously may slow the heart some within a short time after administration. Any conspicuous slowing, if studied electrocardiographically, will probably show some grade of digitalis AV block.

TREATMENT

Treatment in sino-atrial tachycardia should be directed toward the primary condition and when that is relieved the heart rate usually comes down. In cases in extremis, but without hyperthyroidism, heroic treatment as digitalization by intravenous injection to the point of producing heart block or atrial fibrillation, which may be then controlled by maintenance of digitalization, may be acceptable therapy. Prostigmin methyl sulfate, 1 to 2 c. c. of 1/2000 solution has been recently recommended as a treatment of sino-atrial tachycardia in such states as psychoneurosis or hyperthyroidism. Prostigmin is supposed to act by destroying the cholin esterase at the vagus nerve ends. Arthur Ruskin made studies for us of the effects of prostigmin in two cases of simple tachycardia. One patient with an anxiety state had a decrease in heart rate from 106 to 90. In the second case, an alcoholic, the heart rate dropped from 108 to 100. The effect occurred within ten minutes and five minutes after the second 1 c. c. dose. In the anxiety state some effect persisted but in the alcoholic it disappeared within half an hour.

PAROXYSMAL TACHYCARDIAS

Extremely rapid heart action that comes on suddenly, remains perfectly regular then stops abruptly either spontaneously or as a result of carotid sinus pressure or drug therapy, is designated as paroxysmal tachycardia. This may be of atrial or junctional or ventricular origin.

The mechanisms of the paroxysms may be considered to be the same as of premature or extrasystoles, namely: (1) an ectopic pacemaker, which lies dormant for a while, then is set off and supersedes the normal pacemaker for a varying length of time; (2) a circus mechanism into and out of the SA node or the AV node or an island of heart muscle in the atrial or junctional tissues or the ventricle may supersede the normal pacemaker; or (3) a parasystole with a region of local unidirectional block with exit block aligned in the reverse direction to the protection block. When the exit block is dissipated the ectopic pacemaker may gain control. Several parasystolic pacemakers may operate simultaneously and be used as explanation in an occasional case of paroxysmal tachycardia.

Electrocardiograms of supraventricular tachycardia due to usurpation of the function or supersession of the normal pacemaker are rather characteristic depending upon the position of the focus or circus. In all types of paroxysmal tachycardia, the P waves are often obscure. In atrial tachycardia frequently P waves are more clear cut and are essentially normal but may be definitely abnormal, often inverted and combined with the T waves. The QRS complexes are usually of normal form and duration. In a damaged heart, however, the high heart rate may produce ventricular fatigue and broadening of the QRS complexes or alternation of the same. The R-R intervals in a given electrocardiogram of an atrial paroxysm show no measurable variations. However, careful rate determinations after hourly intervals may show slowing as the paroxysm proceeds or under carotid sinus pressure which may within one beat supress the abnormal pacemaker and turn the mechanism back to normal.

In the electrocardiograms of paroxysmal junctional tachycardia, P_2 and P_3 when clearly inscribed are inverted. Digitalis poisoning may produce this type of disorder. The junctional type is usually more persistent than other types of paroxysmal tachycardia. Both of the supraventricular types appear usually in nervous patients who present no reliable signs of heart disease but they may also arise and add complications to otherwise damaged hearts.

The electrocardiograms of ventricular tachycardia characteristically show wide diphasic QRS complexes which usually vary some in form but may be quite similar and simulate the form of single ventricular premature beats. R-R intervals often vary some after runs of perfectly regularly spaced complexes but there may be none of these interspersed intervals. The P-P interval may be longer than the R-R interval and if regular P waves will be superimposed upon the QRS at varying points. If P waves are so placed as to indicate an independent slower atrial rhythm the diagnosis is substantiated. Occasionally there is produced retrograde atrial stimulation with negative P waves coming after every second, third or fourth ventricular complex. It must be remembered that in an occasional case of supraventricular tachycardia, fatigue of one of the bundles will result in broad QRS complexes. Ventricular paroxysmal tachycardia usually develops in the seriously damaged heart muscle of myocardial infarction following coronary thrombosis. However, in rare instances paroxysms of ventricular tachycardia may appear in a patient whose heart seems to be otherwise perfectly normal.

DIFFERENTIATION

The clinical recognition of these disorders is not perfect. Paroxysms coming in younger individuals of a nervous makeup, without or with heart disease and lasting only for a few minutes up to a few hours and remaining perfectly regular in minute to minute counts at short intervals, are likely to be paroxysmal atrial tachycardia. Paroxysmal tachycardias coming on after digitalization are usually junctional and oc-

casionally ventricular in type. The junctional and ventricular types of paroxysmal tachycardia are often more persistent and are of definitely more serious moment. The ventricular type is most frequently associated with myocardial infarction following coronary thrombosis. The ventricular paroxysmal tachycardia frequently shows variations of five to six beats in minute to minute counts at short intervals. The electrocardiographic study, however, is necessary for the absolute diagnosis of the type of the paroxysmal tachycardia. The minute rates of the paroxysmal tachycardia of atrial or junctional origin are rarely below 160 and rarely above 240. The ventricular tachycardias are usually somewhat slower, rarely below 140 and rarely above 200.

TREATMENT

The methods of treatment of paroxysmal tachycardia are numerous and vary some with the type of paroxysm and with the accompanying symptoms. In atrial paroxysmal tachycardia the mechanical pressing of the carotid sinus, thus evoking the vasovagal reflex, should always be tried first. This was successful in one-third of our cases. In the atrial type the post-paroxysmal bradycardia must be anticipated, otherwise it might momentarily be very disturbing. Other forms of intense vagal stimulation or decreased sympathetic stimulation have been successful. The oculocardiac reflex, the Valsalva or Mueller test reflexes, the swallowing reflex and the vomiting reflex have been used to stop paroxysms. Emesis may be most safely induced by the use of syrup of ipecac, by mouth in 5 to 10 c. c. doses to be repeated in half an hour if ineffective. Nausea and vomiting must appear in 15 to 45 minutes for intensive vagus action to be induced.

The vagus nerve end organs may be sensitized by the addition of more choline or the prevention of the destruction of that which is present. Acetyl-beta-methyl choline (mecholyl), in doses of 0.5 to 1.5 grams (7½ to 22½ grains) by mouth, has been used with some success especially where abdominal distention seems to precipitate paroxysms. This is rather expensive and the subcutaneous injection of 30 to 45 mgm., (½ to ¾ grain) is usually effective, particularly when followed by carotid sinus pressure. Prostigmin methyl sulphate in 1 to 2 c. c. of 1:2000 solution (0.5 to 1.0 mgm.) inhibits the action of cholin esterase and alone often stops the paroxysm and frequently produces A-V block. The carotid sinus reflex previously ineffectual will often be effective within 15 minutes following the use of prostigmin.

Quinidine sulphate, 0.3 gram (5 grains), given by mouth every hour, has been found in our series to be the most effective drug therapy. Two or three doses are usually enough but sometimes the maximum of eight doses must be given. This is probably the safest form of treatment for all types of paroxysmal tachycardia and certainly is the most effective in ventricular tachycardia.

Paroxysms in elderly individuals or those who are greatly disturbed and have severe symptoms, particularly pain, are relieved following the injection of morphine sulphate, ¼ grain subcutaneously. This quiets the patients and the vagus stimulating effect of morphine frequently interrupts a paroxysm.

In patients who have received no digitalis and who present evidences of heart failure, rapid digitalization by mouth in massive doses may be effective.

Intravenous injections of 10 c. c. of a high grade of digitalis extract (3.5 cat units*) or of digalen, digiglusin or digifoline have been uniformly successful in interrupting attacks. The highly purified preparations of digitalis lanata, particularly digoxin in 1 to 2 mgm. doses and the lanatoside C, 1 to 2 mgm. doses, in our experience have stopped paroxysms of atrial tachycardia when other methods have failed. Magnesium sulphate in 20 per cent solution, intravenously, the first 5 c. c. dose given slowly and the second 5 c. c. and the 10 c. c. doses more rapidly has been advocated by Europeans to abort attacks that

*Supplied by the Upjohn Company, Kalamazoo, Michigan.

are refractory to other methods of treatment.

As prophylactic treatment against recurrence of attacks, potassium salts, particularly the iodide of potassium in 10 to 15 drops three times a day, if well tolerated, should be tried. This is more effective as a preventive measure in the atrial type. In the ventricular type quinidine sulphate in 5 grain doses, two or three times a day, will often ward off episodes. In elderly patients, particularly those who show any tendency to congestive failure, maintenance of digitalization often prevents recurrences.

OTHER ATRIAL CIRCUS MECHANISMS, FLUTTER AND FIBRILLATION

Disturbance in cardiac rate and rhythm resulting from circus or circulating stimulation are most common clinical disorders. Atrial circus mechanism was clinically demonstrable in half of our patients with heart disease and congestive failure. Rheumatic heart disease with mitral stenosis, coronary arteriosclerotic heart disease and hyperthyroid heart disease usually sooner or later are complicated by flutter or fibrillation. In rare instances of severe infectious diseases, as pneumonia and epidemic influenza and noxious gas inhalation and after undue exertion, flutter or fibrillation is precipitated. It is interesting to note that syphilitic aortic disease, angina pectoris and *Streptococcus viridans* endocarditis are rarely accompanied by atrial fibrillation. Occasionally no other definite criterion of heart disease may be established in a patient with atrial fibrillation.

Disturbances in rate and rhythm due to abnormal circulating stimulus formation are most common in patients with serious heart disease and rare in patients with normal hearts. Circus mechanisms in which a ring of atrial muscle about the great vessels or the auricles is so changed physiologically that reentry is possible because the definite refractory period produces rapid fire impulse formation and stimulation with very high atrial rates. Atrial flutter results when the circus pathway is short and regular while atrial fibrillation appears when there are islands of tissue of irregular refractoriness within the longer circus pathway. Blocking and irregular reentry occur and give rise to the highest stimulation rate. These processes may of course occur in the ventricle but when so located they are of such serious moment that they rarely come to clinical attention.

The clinical diagnosis of atrial flutter is more difficult and not as certain as that of atrial fibrillation. Atrial flutter of the pure form produces rapid, regular atrial contractions at the rate of 240 to 380 per minute. There is practically always a two-to-one block so that a patient with a regular rhythm and a ventricular rate and consequently a pulse rate of 120 to 190 per minute should be clinically suspected of having atrial flutter. In rare instances a one-to-one ratio may exist and a high rate result. The rhythm is practically always regular. Irregular rhythm may result from varying grades of A-V block, but becomes regular with exercise. The usual extreme but temporary susceptibility of the A-V conduction in most patients with flutter to reflex vagus blocking from carotid sinus or ocular pressure is diagnostic of flutter.

The electrocardiographic evidence is conclusive but occasionally it is difficult to differentiate a rapid paroxysmal atrial or junctional tachycardia from a slow auricular flutter with a two-to-one block. The circus mechanisms are usually perfectly regular at a rate above 240. The lability of the carotid sinus reflex usually makes it possible to increase the grade of A-V block during the inscription of the electrocardiogram and make clear the atrial activity. These "C" or "F" waves are absolutely regular in spacing, size and contour at a rate of 240 to 380 per minute. They may resemble inverted P or T waves at times. These may be upright or diphasic or flat topped but always absolutely regular. The rate may change slightly when the ventricular mechanism is suspended by carotid sinus pressure. Digitalis increases the rate and converts it to fibrillation and quinidine slows it and converts it to normal sinus mechanism. When the circuses, "C" or "F" waves, are not absolutely regular, the condition is spoken of as impure atrial flutter

and when still more irregular and with irregular blocking and more rapid it is coarse atrial fibrillation.

Atrial fibrillation produces an absolutely irregular heart action in rhythm, force and rate. There may be runs of rapid beats of atrial fibrillation. The ventricular rates are only moderately increased usually to 120 or 140, rarely over 160 and extremely rarely to 180 or more. Digitalization increases the block and slows the heart rate. Atrial fibrillation with a slow ventricular rate may be the result of preponderant conduction tissue pathology that has developed following coronary arteriosclerosis.

The electrocardiographic diagnosis of atrial fibrillation is made on the basis of irregular circus mechanisms at atrial rates of 380 to 600 per minute but with high grades of A-V block. The waves which were coarse but irregular are termed "F" waves. These "F" waves vary very much in height and are sometimes very fine and practically isoelectric. There are no definite P waves or constant P-R intervals and the ventricular responses occur very irregularly at varying rates. Carotid sinus reflex may in certain cases slow the ventricular rate. A nodal rhythm must of course be ruled out but a regular ventricular response is the electrocardiographic criterion of nodal rhythm but may be impossible of differentiation in atrial fibrillation with complete heart block.

TREATMENT OF FLUTTER AND FIBRILLATION

Therapeutic control of the excess stimulation of the circus mechanism or absolute interruption of the same may be practiced. In the paroxysmal types of flutter or fibrillation prophylactic drug therapy is in order. Digitalis is of course the sovereign remedy for these conditions but quinidine has often proved to be a most valuable next best drug and frequently quinidine is the drug of choice.

Digitalis preparations have been increased greatly in number and in potency. The new U. S. P. powdered leaf of digitalis purpurea made up in pill or tablet form, has been standardized against a strong international standard so that one grain of the powdered leaf contains one cat unit. This results in a 30 to 45 per cent increase in potency of most preparations on the market so that one grain doses are widely used instead of 1½ grain (0.1 gram) tablets. The total mass necessary for digitalization is now roughly calculated as one grain per ten pounds of body weight and one grain is considered to be the average amount destroyed per day by the usual patient's body metabolism. Many new and satisfactory purified extracts have been developed for intravenous use in emergencies but these are rarely necessary in flutter or fibrillation.

New powerful digitalis lanata preparations particularly digoxin, digilanids A, B, C, and lanatoside C, have been found to be very promptly effective but without the usual persistence of action of the digitalis purpurea. The digitalizing dose is very small; for digoxin (1.5 to 2 mg.) 1/45 to 1/30 grain for digitalization but it requires (0.5 mg.) 1/130 grain daily for maintenance. Tablets of digoxin for oral administration are useful since absorption is very prompt and effects are noted within three hours.

New strophanthus kombe and gratus glucosides are now available and are used in some quarters for the initial emergency cardiac tonic effect in (0.25 mg.) 1/250 grain dose. This drug is rarely necessary in flutter and fibrillation cases and usually is contraindicated because most fibrillating patients have had digitalis administered. Strophanthus was long ago shown to be an unreliable drug when given by mouth, primarily because of the erratic rates of absorption.

Digitalization is usually accomplished by the rapid or moderately rapid method in flutter or fibrillation. Half the total calculated amount is administered within the first six to twelve hours and the third quarter six hours later, then at six hour intervals a sixteenth of the whole dose. Slower digitalization may be carried out at the rate of three grains every three hours for not

more than six doses, then the dose reduced to one grain for the next six hours. The dosage is controlled by hourly observation of the heart action and rate. In rare instances flutter is changed directly to sinus rhythm by digitalis but usually the two-to-one block increases to four-to-one and simulates a slow regular heart action. The carotid sinus reflex slowing is, as a rule, still transiently effective, then atrial fibrillation is precipitated and by continued digitalization the A-V block is increased and maintained until the heart or ventricular rate drops to between 70 and 60 per minute. If there are no signs of congestive failure, digitalis medication is stopped with the hope that as the blocking effects wear off the sinus pacemaker will reestablish itself.

We have found, however, that cinchonization is necessary in practically all of our flutter cases digitalized into fibrillation to reestablish sinus rhythm. Cinchonization is carried out practically always in the routine fashion for atrial fibrillation, whether or not flutter has preceded. In fibrillators with failure preliminary digitalization is advocated. Quinidine sulfate in a 1½ grain (0.1 gram) dose capsule is given as a test dose and if there is no idiosyncrasy shown within a few hours, then one 5 grain capsule of quinidine sulfate is administered every hour for not more than eight doses then one every four hours for three or four doses a day. Usually the normal sino-atrial activity is reestablished after the first three or four doses.

SUMMARY

The common causes of rapid heart action, namely sinus tachycardia; paroxysmal tachycardia of atrial, junctional and ventricular origin; atrial flutter and fibrillation, have been discussed.

The physiologic or pathologic basis, the causative factors, the clinical diagnostic criteria, the tests, the electrocardiographic "signs" and the therapy of each type of rapid heart action have been outlined.

REFERENCE

Decherd, G. M., and Herrmann, G. R.: The diagnosis and treatment of the common cardiac mechanism disorders, Texas State J. M. (in press).

THE VALUE AND LIMITATIONS OF ELECTROCARDIOGRAPHY*

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Electrocardiography has a definite and valuable place in the diagnosis and management of cardiac disease. It is, however, only one part of the complete examination of a patient to evaluate the cardiovascular status. An approximate evaluation of the relative values of the steps in a complete cardiovascular examination would probably be as follows:

History 40 per cent; complete physical examination 35 per cent; electrocardiogram 15 per cent; x-ray 5 per cent, other laboratory examinations 5 per cent.

Electrocardiography was never intended to, never has, and never will be capable of replacing a complete history and complete physical examination. It is not a method for the short cut to cardiac diagnosis, and remember it must be properly interpreted to be of any value. Let me first mention the limitations of the method before stating its value.

It never makes the diagnosis of the presence or absence of valve disease, except occasionally suggested indirectly. It rarely makes an etiologic diagnosis, and then only by inference, indirectly. For example, right axis deviation with P wave changes suggests mitral stenosis of rheumatic origin; a prolonged P-R interval suggests an active rheumatic infection; and the typical pattern of myocardial infarction suggests coronary artery disease. Electrocardiography never makes a diagnosis of the functional integrity of the myocardium or myocardial efficiency of degree of cardiac compensation or decompensation. This is the most important consideration in cardiac diagnosis and must still be made chiefly upon an adequate history aided by certain

*Read before the Escambia County Medical Society, Pensacola, Fla., May 13, 1941.

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physical signs and certain laboratory procedures such as functional tests (Master's), circulation time, venous pressure and vital capacity. Therefore an electrocardiogram requested to determine the functional status of a patient with cardiovascular disease, as for example preoperatively as a risk, is not capable of doing this and with this purpose in mind is wasted. This could be determined without an electrocardiogram by a proper history and physical, often history alone. An electrocardiogram may give added information regarding the type and degree of myocardial changes, but no information as to whether the patient is or is not a suitable operative risk.

An abnormal electrocardiogram always indicates the presence of disturbed cardiac function, either temporary or permanent. This is important to remember: Changes shown may be reversible or irreversible.

However, a normal electrocardiogram does not always indicate the absence of organic heart disease, since in a few cases a patient with organic heart disease even of a serious degree may have a normal electrocardiogram. The more recent use of precordial electrocardiograms has reduced this possibility, but it still exists. The chief example of this is the patient with coronary artery disease and angina pectoris. The absence of abnormal findings may apply, as you well know, not only to the electrocardiogram, but to the physical examination, to the x-ray, and to all other laboratory examinations. The diagnosis must often be made on the history alone. Other instances where the electrocardiogram may be normal in the presence of heart disease are hypertension, syphilitic aortitis, early rheumatic heart disease, and congenital defects.

To state these facts in another way, it can be said that a patient without cardiac disease always has a normal electrocardiogram, and a patient with cardiac disease always has an abnormal electrocardiogram except for a few exceptional cases as stated above. It may be said that the electrocardiogram is of value in a positive way but not absolutely in a negative way. This fact does not depreciate the value of the method any more than the same fact regarding the Wassermann test, as one other example, depreciates the value of that test.

One cannot judge the severity of the cardiac damage, the degree of cardiac efficiency, or therefore, the prognosis in any given case of cardiovascular disease by the degree of abnormality present in the electrocardiogram. A patient with serious cardiac damage in complete heart failure with a very poor prognosis may have an electrocardiogram with fewer abnormalities than a patient with cardiac damage of another type without decompensation and with an excellent prognosis. Two patients with equally abnormal electrocardiograms may have entirely different clinical pictures, one well compensated, the other markedly decompensated. The electrocardiogram therefore gives no information as to the efficiency of the cardiac musculature, the important consideration in determining cardiac sufficiency or compensation.

As to etiology again, the electrocardiographer can only report the abnormalities present and rarely indicate anything concerning the cause of such abnormalities. Sometimes he knows from experience that certain abnormalities or patterns are usually produced by certain etiologic types of heart disease, such as hypertensive heart disease, arteriosclerotic coronary heart disease, especially with myocardial infarction, rheumatic mitral stenosis; rheumatic heart disease, congenital heart disease, changes due to digitalis. He may occasionally suggest these possible etiologic diagnoses, but it remains for the clinician to correlate the electrocardiogram with the clinical facts to arrive at a correct etiologic diagnosis. In many cases the changes present may be due to one or more of several possible causes, temporary or permanent, and the electrocardiographer can only consider such changes non-specific and the clinician must attempt to do the rest.

In interpreting the electrocardiogram, therefore, one's chief object is to decide whether the electrocardiogram is normal or abnormal, and record the abnormalities. If a certain pattern exists, he may suggest the

possible cause. The electrocardiogram must be evaluated along with the clinical facts. A similar situation is true in x-ray examination and the laboratory tests.

I have followed the method of reporting the electrocardiogram as within normal limits, probably within normal limits, borderline electrocardiogram, probably normal, and definitely abnormal. The reason for these several indefinite groups is the fact that there are wide ranges of normal and certain changes which alone are of questionable significance. It is true too that the subject is constantly changing, and so the interpretations. I have followed the conservative attitude of erring on the normal rather than the abnormal side, reading too little rather than too much significance into such changes.

Many clinicians expect entirely too much of the electrocardiogram. For this reason they are disappointed in its use. The trend previously has been to read entirely too much into the electrocardiogram; now the trend is to read less and less into it. This does not decrease its value a single bit. The electrocardiographer is often questioned and criticized concerning the interpretation of an electrocardiogram. The referring physician fails to realize that he knows only the age of the patient, position in which the electrocardiogram was made, and the amount of digitalis the patient has had before interpreting the tracing. Any additional information may prejudice his interpretation. The individual who has personally evaluated the clinical symptoms and signs should then correlate the electrocardiographic findings with such facts for a complete diagnosis.

VALUE OF ELECTROCARDIOGRAM

After such lengthy discussion as to the limitations of the electrocardiogram, what is its value?

1. The electrocardiogram will always make an absolute diagnosis of the arrhythmias. Of course, this is true only if the individual reading the electrocardiogram is capable of correctly diagnosing the arrhythmias electrocardiographically. Our present complete understanding of the arrhythmias is based upon their electrocardiographic characteristics, and the more accurately a physician understands the arrhythmias electrocardiographically, the more accurately does he understand them clinically, and the less often will he need the electrocardiogram to diagnose them.

2. The electrocardiogram records disturbances in the electrical activity of the cardiac musculature and its neuromuscular structures. It therefore records the presence or absence of myocardial changes which can be determined by no other means at our disposal. It has been likened to a living autopsy on the heart. It will show changes in A-V conduction, changes in auricular musculature, in intraventricular conduction, presence and location of bundle branch block, changes or injury to ventricular musculature, which can be determined in no other way. In acute infectious diseases the electrocardiogram may show changes indicating a toxic effect upon the myocardium which can be determined in no other way, which has a direct bearing on the management of the case.

3. As a corollary of the second use, and perhaps its most valuable use, it will absolutely diagnose and localize coronary occlusion with myocardial infarction in practically all cases at some stage of its course. The importance of this fact need not be emphasized since this is such a serious diagnosis and carries with it so many important considerations.

4. It is useful in the management of cardiac patients by observing progression or retrogression of changes. This is true in all types of cardiac disease and especially in patients with myocardial infarction.

5. It determines the presence and degree of drug effect, especially digitalis and quinidine. In a patient in whom the amount of previous digitalis therapy is unknown or uncertain, an electrocardiogram will determine whether or not digitalis effects are present and so help to determine the dosage of further therapy, and in patients receiving digitalis or quinidine it serves as a guide to full therapeutic or toxic levels.

6. It helps to determine whether cardiac enlargement is chiefly of the left or right ventricle; often of considerable importance.

From this presentation I am sure you will agree that there is a definite place for the electrocardiogram in cardiac diagnosis and management; a function of considerable value. You can also realize its limitations. By appreciating both one can use electrocardiography to great advantage, and neither expecting too little nor too much, not be disappointed by the results obtained.

Because the electrocardiogram does give information which can be secured by no other means, it is evident that no examination of the cardiovascular system of a patient is complete without an electrocardiogram. Many times it will give no further information or assistance, it is true, but many other times it will do so.

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SYMPATHETIC NERVE BLOCKS IN REHABILITATION OF THE INJURED EXTREMITY

REPORT OF CASES; AND A DISCUSSION OF CAUSALGIA

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Pain sometimes remains as the only symptom to interfere with an otherwise satisfactory result following an injury. Pain associated with joint stiffness and muscle weakness may be an even more obvious reason for prolonged disability and sometimes pain appearing at each end of the very limited motion in joints may be the chief deterrent to exercise and forced motion necessary for recovery of function. These pains are conveyed largely by the sympathetic nervous system. The initial injury may have been very severe with or without fractures, or it may have been relatively mild. Because pain is a subjective complaint and as long as its presence is maintained by the patient the possibility of its existence cannot be absolutely denied, its significance is frequently controversial, particularly in certain medico-legal cases. The result in a patient who has recovered to such an extent that from the objective standpoint he appears able to work, may be marred by his insistence that he has pain. Every surgeon who treats injuries, knows that the persistence of pain may be a very discouraging and a very annoying complaint, so much so, that its presence may irritate the doctor who thinks he has obtained a splendid result, but that the patient will not admit it. On the other hand, even when no thought of compensation or lawsuit is involved, pain of a minor or severe character is known to follow trivial or serious injuries. These pains may persist for months or years and may be so annoying to the patient, that they result in a mild psychopathic trend and even a change in personality.

Weir Mitchell first described and named a condition causalgia which he observed in soldiers who had been injured during the Civil War. Causalgia literally means a burning pain and the type of pain he described from incomplete severance or injury of a nerve was very intense. The soldiers had a severe burning pain in the distribution of the nerve affected. The area was hyperesthetic. There were paresthesias and the subject protected himself from the slightest stimuli. Heat, cold and even wind would cause an exacerbation of the pain to such an extent that they attempted to avoid them. Pains of a milder character which may not be regarded as typical causalgia, occur more frequently and may persist late in convalescence from injuries.

Léŗiche was the first to realize the practical importance of the sympathetic nervous system in arresting pain of such character. He however gives credit to Francois Franck for preceding him in experiments which showed that the sympathetic nervous system had centripetal elements. In 1915 Léŗiche noticed a case in which there was a vasomotor phenomenon associated with pain and cyanosis resulting from a bullet wound in the right axilla. The hand was cold and a deep purple color. The slightest touch caused painful symptoms. He performed a periarterial sympathectomy on the brachial artery. This resulted in prompt cessation of the burning pain and the patient recov-

ered. Since that time the relationship of causalgia to the sympathetic nervous system has been repeatedly confirmed.

I wish to report several cases and show some photographs of patients who had had adequate time for complete recovery from serious or trivial injuries, and whose pain persisted to prolong their disability and interfere in some instances with the mobilization of stiff joints. The pain in these patients was relieved by sympathetic nerve blocks with novocain during treatment in Touro Infirmary. The associated treatment was physiotherapy and, in one instance neurolysis. All of these patients came under my care months after their original injury. The type of case herein discussed and illustrated is one in which the injury has long preceded the then existing symptoms which were unduly prolonging the disability.

CASE NO. 1

G. R., a white man aged 41 years, was referred to me by an insurance company. Over four months prior to this he had been injured in an automobile accident, which occurred while he was driving a truck in Opelousas, Louisiana. The accident resulted in injury to his left forearm. Roentgenograms at that time showed a fracture of the humerus just above the elbow. The fracture was reduced by his doctor and a cast was applied. He had some swelling of the hand. The cast was removed after six weeks. Ever since then his hand and arm had been painful and stiff. He could not move his fingers and forced motion caused severe pain. He had been given frequent physiotherapy treatments but his progress had been very slight and the elbow, wrist, fingers and hand were so stiff and painful that he could hardly move them at all.

Examination at the time he was admitted to my care showed a well developed, middle aged white man. His left elbow was at 90 degrees flexion and his wrist and fingers were straight (fig. 1). He had not over 25 degrees in entire range of motion in the elbow. There was some stiffness in the shoulder. Forty-five degrees abduction was the limit. The wrist was stiff. He had not over 30 degrees of flexion-to-extension motion in it. His fingers were in the accoucher position. They were adducted and stiff. His total amount of motion including all the joints of the fingers was not over 20 degrees. He could not abduct his fingers at all; they could not be separated. There was slight motion in the thumb, the total range of extension and flexion being through an angle of approximately 30 degrees. He could not approximate his thumb to the ends of the fingers. There was marked atrophy of the muscles of the forearm and hand; the hand was extremely weak. There was an obtunded sensation to touch and pin prick on the fingers. The distribution of this was glove-type.

Roentgenograms showed marked osteoporosis of the bones of the left hand and arm.

Laboratory tests showed nothing remarkable in the blood count, the Wassermann, nor in the urinalysis.

The diagnosis of stiffness and pain of the hand and arm with causalgia included also a diagnosis of Volkmann's contracture. He was admitted to Touro Infirmary for treatment.

On July 26, 1940, and on August 8, 1940, the left stellate sympathetic ganglion was blocked by infiltration of 10 c. c. of one per cent novocain. On each occasion following these blocks there was a rapid appearance of Horner's syndrome with enophthalmos, a small pupil, and absence of sweating on that side of the face. The arm became warmer. The patient remarked that pain ceased following these blocks. Attempts to move his joints following these blocks with novocain resulted in very little pain compared to similar attempts prior to the sympathetic nerve analgesia. The absence of pain persisted surprisingly long, all that afternoon. On the following day, though pain on motion had returned, it was much less than preceding the injection. Daily physiotherapy in the form of diathermy, massage, whirlpool bath and active and passive motion was given. The improvement from physiotherapy was more dramatic immediately following the sympathetic blocks. In a few days function of the joints and muscles began to return rapidly. The range of motion in all joints increased, to such an extent that when he was discharged from the hospital two weeks following admission, he could approximate the thumb to each finger. He had 100 degrees of motion at the elbow and 45 degrees motion at the wrist. He could get the thumb over his second and third finger in such a manner to make an incomplete grip. With rapid improvement he was dismissed to go home and continue the active use of his extremity.

Because the improvement seemed to be stationary, he was re-admitted to Touro Infirmary on August 22, 1940. On August 24, 1940, the left cervical sympathetic stellate ganglion was blocked with novocain. During this second stay at the hospital physiotherapy was re-instituted including diathermy, whirlpool baths, active and passive motion. The patient was discharged from the hospital on August 31 and was asked to continue active use of the extremity at his home. Improvement continued gradually. Although in December he was judged able to work, he could not get his old job back. This incidentally is often a serious deterrent to progress in a patient who otherwise would be rapidly rehabilitated. In January, 1941, he was

able to make a fist; almost completely closing the hand. Extension of the fingers, and abduction of the fingers was excellent. He had approximately complete range of motion in the elbow. The range of pronation and supination was excellent. He could raise his arm straight over his head. The strength of his left hand and arm was good; he was able to handle beer cases with it. He was discharged as well and able to return to work as a truck driver.

Fig. 1.—Case 1.—Illustrations show the condition of the extremity before and after treatment by sympathetic nerve blocks with novocain and physiotherapy. The arm had been injured four months previously. Before treatment the hand and wrist and elbow were extremely stiff and painful. Almost the entire range of motion which was very little is shown in the upper pictures. There was an atrophy of muscles and the condition resembled a Volkmann's ischemic contracture. Sympathetic nerve blocks relieved the pain. In the lower pictures the result is shown. He was able to return to work as a laborer.

CASE NO. 2

J. L., a young white man aged 24 years, was first seen by me on May 23, 1941, three months after an accident which occurred on February 23, 1941. In this accident his left arm was hurt by being caught in a conveyor belt and being wrung so that severe lacerations resulted. His left ring finger was torn off at the base. He had a severe laceration of the left forearm on the medial aspect and another severe laceration on the medial aspect of the left upper arm. There was a chip fracture of the external supracondylar ridge. The lacerations were repaired by his doctor and his arm was put in a splint. The arm remained in a splint for one month. Following that, massage, heat treatment and active and passive motion were encouraged, but he had lost much of the normal range of motion of his hand and arm. In addition, he had pain and hyperesthesia in the region of the distribution of the ulnar nerve and almost complete anesthesia of the left fifth finger.

Examination revealed a well developed young

Fig. 2.—Case 2.—Three months previously, he had his left arm caught in a conveyor belt. Stiffness and pain, weakness and inability to make a fist resulted. The complete range of flexion and extension is shown in the upper pictures. Neurolysis for partial paralysis of the ulnar nerve, sympathetic nerve blocks with novocain and physiotherapy resulted in good recovery, so that he could return to his previous manual work in a container factory.

man and the positive objective findings were related almost entirely to the left upper extremity (fig. 2). The left ring finger was off at the base of the proximal phalanx. The wound was entirely healed. He could flex his left little finger through a range of only 20 degrees. The finger remained in a slight flexion at the proximal interphalangeal joint. He had about 45 degrees of total flexion-extension motion in the joints of his index and middle finger. The thumb had a fair range of motion approximately 90 degrees of flexion, but it was impossible for him to approximate the thumb to the tip of the index and middle finger. He also could not touch the stump of his ring finger nor the tip of his little finger. There was definite hyperesthesia over the ulnar side of the hand and almost complete anesthesia of the left fifth finger. He could not abduct his fingers at all. Because of the obtunded tactile sensation in the ulnar nerve distribution and the inability to abduct the fingers, an involvement of the ulnar nerve was judged to be present, and that it was probably caught in the long scar about ten centimeters in length over the anteromesial aspect of the arm below the elbow. Flexion of the left fifth finger by the observer resulted in dimpling of the scar on the forearm which seemed to indicate that the tendon itself was in continuity. This was an important observation as was evident in the postoperative result. It was not certain whether the ulnar nerve was caught in the upper scar about six centimeters in length transversely across the inner aspect of the upper arm, or in the lower scar on the forearm. The fact that pressure over the ulnar nerve, posterior to the internal epicondyle caused pain which was not an unusual type of pain, seemed to indicate that the nerve was involved in the lower scar. There was definite stiffness at the elbow joint with total range of motion of about 90 degrees. Pronation and supination of the forearm were restricted to a range of 45 degrees instead of the normal 180 degrees. There was also some stiffness in abduction of the shoulder.

All laboratory tests including the blood chemistry, blood count, serologic test for lues and the urinalysis, showed nothing remarkable.

This patient was sent to me by an able surgeon in another community with the request that I give my opinion as to whether the disability in his arm should be accepted as permanent and whether the company should not settle the case as a permanent and total loss of that extremity. My reply was that I thought the man could be totally rehabilitated to go back to his previous work handling 15 pound iron rods in a container factory.

He was admitted to Touro Infirmary. On May 27, 1941, under ethylene anesthesia, the ulnar nerve was explored in the region of both scars because of the opinion that it was bound in a scar and that a neurolysis was indicated. The ulnar nerve was exposed in the upper arm. It was definitely not involved in the upper scar. This wound was closed. Exploration through an incision lateral to the jagged scar on the forearm permitted exposure of the ulnar nerve under the flexor carpi ulnaris on the flexor profundus digitorum. There for a distance of approximately five centimeters the nerve was bound in a firm scar. This scar was released by carefully dissecting the nerve free and a piece of muscle was turned around the nerve in such a manner to protect it from a re-adhesion of the dense scar extending down from the skin. Following this operation the obtunded sensation on the ulnar side of the hand was immediately improved and he could abduct his fingers much better than prior to the operation. Acute tactile sensation on the ulnar side of the hand and the fifth finger began to appear. His wound healed primarily. During this operation the palmaris longus tendon was lengthened by Z incision. This was done because the wrist was held in approximately 35 degrees flexion and attempt to extend it more than that showed a marked prominence of the palmaris longus. This tendon lengthening proved to be of distinct value, because following this operation, his wrist could extend to 45 degrees more than the straight angle.

On three occasions, June 17, 20 and 24, during the period following the operation, the left sympathetic stellate ganglion was blocked with novocain, one per cent solution. On each occasion there was a definite subjective improvement. The patient said that his arm felt better; that there was less pain during the physiotherapy and exercises. Improvement in joint function and range of motion was rapid. He was dismissed from the hospital very much improved. He could for the first time make a satisfactory fist and could approximate his thumb to the index, middle, and little fingers. The flexion of his index and middle fingers was not complete and the range of extension of his wrist (only 45 degrees from the straight angle) remained a most disabling trouble. Improvement in flexion and extension of the elbow had been so marked that he had almost complete range of motion, approximately 25 degrees short of complete extension and approximately 15 to 20 degrees short of complete flexion. Pronation and supination were good. He had very little flexion of the middle finger at the interphalangeal joint, but 90 degrees flexion of the little finger at the metacarpophalangeal joint. He was kept under observation with encouragement to continue active use of the extremity and to take vigorous exercise. Improvement continued so that on July 22, 1941, he was sent back to work to start in the same job which he previously had. This work was in a box factory and his job was to handle long iron rods which averaged about 15 pounds in weight. It was thought that the same job which he had previously

would be more encouragement for his recovery than a much softer job which might have magnified his obviously partial permanent disability. His partial permanent disability was evaluated according to State allowances for loss of certain functions of the hand and arm at 35 weeks of disability. He has remained a good worker in his previous occupation.

CASE NO. 3

Mrs. E. O., a white female, aged 46 years, had fallen on her right hand eight months previously. Pain in the wrist resulted. X-rays taken by her doctor were negative for fracture or dislocation. The wrist was strapped, but ever since then she has had continued pain in the wrist to such an extent that particularly extension results in a sharp pain. She also had weakness of the hand and wrist. Movements of the wrist which precipitated the pain magnified the weakness. This weakness was so severe that she could not brush her teeth. Attempts to work with the arm resulted in a subsequent period of a rather severe pain and stiffness in that wrist. She frequently attempted to work in her garden thinking it would help, but instead of helping, in the subsequent hours and days the wrist was so painful she did not wish to attempt such exercise again.

Examination of the patient revealed no notable objective findings except those relating to the right wrist and hand. She had numerous other complaints, including gastrointestinal disturbances which proved to be, after subsequent examination and tests, on a functional basis. The right hand was very weak. The grip in this hand was much weaker than that of the opposite hand and when she attempted to squeeze an object she had pain in her wrist. The wrist was tender particularly posteriorly over the radio-carpal joint. Hyperextension produced sharp pain. There was slight limitation of hyperextension and very little stiffness otherwise. There was slight atrophy of this hand and it was colder than the opposite hand. Roentgenograms of the two hands showed osteoporosis of the bones of the right hand and of the lower end of the radius and ulna. Laboratory tests showed nothing notable.

This individual was judged to be somewhat of a constitutional inferior and psychopathic personality. It was realized that she may be exaggerating the degree of pain she actually had. As she evaluated it, it was something very intense and was making her quite unhappy, besides interfering with many of the things she liked to do and the performance of many normal duties. She was admitted to the hospital for physiotherapy. The right cervical sympathetic ganglion was blocked on two different occasions. Following each block a Horner's syndrome developed. Temperature studies were made, using a thermocouple prior to and following the sympathetic blocks. There was a definite increase in the temperature at different levels of the affected extremity; the greatest increase being 3° C. This increase was not only over the temperature readings of that same place prior to the block, but was also greater than the temperature readings on the opposite extremity. Following these blocks she said that her hand and wrist felt fine. Pain disappeared and the result seemed to be excellent. Before dismissal from the hospital, where she remained for a period of nine days, her complaint relative to this extremity had completely disappeared. She felt that she had an excellent result. Subsequently the pain reappeared after several weeks but was very mild and disappeared again. Reports as late as six months following this are that her hand has remained well.

CASE NO. 4

D. C., a white male, aged 42 years, was injured seven months previously in a fall from a scaffold. At that time he had a dislocation at the proximal interphalangeal joint of the right fifth finger. Roentgenograms showed that the reduction was good but he had a persistence of pain. This pain was referred up the ulna side of the hand and was said to be very intense. Use of the hand aggravated the pain. When admitted to my care (May 7, 1940), his left fifth finger was stiff in about 45 degrees flexion at the proximal interphalangeal joint. There was considerable pain and tenderness at the region of that joint and some edema or thickening of the periarticular tissues when compared with the same joint of the opposite hand. He could flex his finger through a range of 40 degrees. Attempts to move the finger by the observer resulted in complaint of severe pain.

Here was an instance where a man had a disability that was quite severe and which was regarded elsewhere as sufficient to keep him from working as a painter. The only feature of the disability however, was the pain, because the lack of motion in the joints of the fifth finger was insufficient disability to prevent him from working at his previous trade.

Here the question of compensation and recovery of damages was a possible consideration and it was realized that the man might be magnifying his complaints. However, he did have objective evidence that was consistent with pain and it was realized that a treatment which would result in recovery from the pain would also result in his complete rehabilitation. For that reason it was deemed justifiable and advisable to admit him to the hospital for treatment. On three different occasions while he was in the hospital for a period of nine days, the left stellate sympathetic ganglion was blocked. Following these blocks each time a Horner's syndrome developed and his subjective evaluation of the condition was that it was much better. He had practically no pain following the effective blocks even when motion was forced. Using physio-

therapy as an adjunct, the range of motion increased rapidly so that he could extend his finger to about 25 degrees short of normal and could flex it through a range of 100 degrees. These objective findings were consistent with a good result and the subjective findings were likewise consistent with recovery. He was dismissed to go to work at his previous trade on June 19, 1941. He returned to work as a painter and continued on the job.

DISCUSSION

Not all patients respond as well as those whose case histories are herein recorded. I have used sympathetic blocks on a number of other occasions for residual pains following injuries and for causalgia. In at least 75 per cent of the instances the results might be regarded as entirely satisfactory. On two different occasions I have resected the sympathetic ganglia for causalgia; once the cervical sympathetic ganglion; once the lumbar sympathetic ganglion. In each of these instances the improvement was remarkable. However I do not believe that it is justifiable to do the radical operation where repeated novocain blocks will accomplish the same result.

To anyone who has not had some experience with sympathetic blocks and sympathetic surgery, the relief of pain in numerous conditions following novocain blocks or ablation of the sympathetic nervous system is remarkable. The good result is hard to believe when the physiology of nerve pain conduction has been thought of as a fundamental function of the somatic nerves. The real explanation of the relief of pain following inactivation of the sympathetics by novocain blocks or by ganglionectomy is far from adequate and complete. However, it does work. There is relief of certain intense deep pain by novocain block of the sympathetic and by sympathectomy. Lériche arrived at many of his conclusions from a practical standpoint, almost an experimental standpoint on human beings. It has been fortunately a happy type of human experiment because the results are so gratifying.

SUMMARY

A brief discussion of pain and of stiffness of joints resulting from injuries was presented. The pain following injury may be the only residual which would interfere with an otherwise satisfactory or perfect result. The existence of this pain under such circumstances becomes a dominant obstruction to complete recovery. Whereas sometimes there is a willful exaggeration of the pain by the patient for conscious or involuntary efforts to recover damages or compensation, on the other hand the pain is frequently obvious from an objective as well as a subjective standpoint, that is, when the objective evidence is such that accompanying pain is to be expected. Four instances are given in the form of case reports where repeated sympathetic nerve blocks with novocain in conjunction with physiotherapy resulted in recovery of the patient and rehabilitation of an extremity. In two instances the results otherwise had been regarded as permanent and total disability.

BIBLIOGRAPHY

Gask, George: The Surgery of the Sympathetic Nervous System, William Wood and Co., Baltimore, 1934.

Lériche, Rene: The Surgery of Pain (Translated by Archibald Young), The Williams and Wilkins Co., Baltimore, 1939.

PITFALLS IN EARLY DIAGNOSIS OF LEPROSY

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The status of leprosy in Louisiana and other Gulf states seems to be stationary. The disease is not on the increase but neither is it dying out. The admissions to the National Leprosarium at Carville seem to substantiate this fact. No definite decline has been noted in new admissions from year to year. If anything, there seems to have been a slight tendency towards an increase in the admissions from the Southern States

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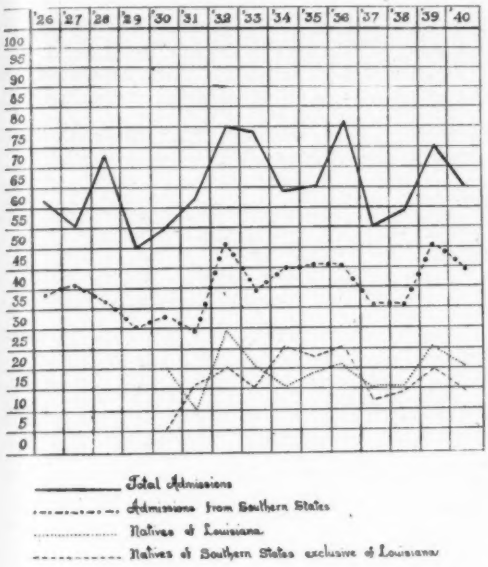
in the last ten years. This is shown in the following table:

TABLE 1



Most of the patients admitted from the Southern states are natives of the Gulf states, the great majority of them being born in Louisiana, Florida and Texas. In these states leprosy can be considered to be endemic, whereas in the other states it is sporadic.

The figures in the above table for the Southern states seem to indicate that the average patient had leprosy long enough before admission to transmit the disease to another individual. In other words the diagnosis and isolation of each case is not made early enough to be effective. The average patient admitted to Carville has had his disease for three to four years and in some instances for ten years or longer. If the private physicians were more alert in the detection of the disease, its continued slow propagation in the Gulf states, where it is endemic, might decline and finally be overcome. The ignorance of the general practitioner when it comes to the recognition of leprosy seems remarkable. Often characteristic signs which should be evident on routine examination are overlooked for long periods of time.

It has been estimated by the leading leprologists of the United States that there are at least 1000 lepers at large in this country. This is a conservative figure. The whereabouts of some of these lepers are known to the medical profession, but a large number of them remain undiscovered. In the Southern states, where most of them live, they are slowly transmitting their disease to other members of their family or to other individuals who come in intimate contact with them. Although we do not profess to know the exact mode of transmission of leprosy, we do know that each new patient contracts it from some person who is already afflicted with the disease. It is true that contagion may occur only under favorable conditions and after prolonged and intimate contact. There is evidence that its propagation may be restricted in large measure to certain family groups. At any rate the favorable conditions are present in Louisiana, Texas and Florida, for instance, where new cases seem to occur as fast as old ones are sent to the Marine Hospital at Carville for proper isolation and treatment. It is an interesting fact that, considering the relative population of the two races in Louisiana, the number of white and colored patients admitted from this state continues to indicate that leprosy is twice as prevalent among the white race. This would seem to refute the theory that this disease is spread solely in unsanitary surroundings and among people of the lower social and economic stratum. One must not expect to find leprosy only in squalid homes.

The average patient coming to Carville is in a fairly well-advanced stage on admission and has then had the disease for a number of years. From my questioning and examination of 425 patients here, it is found that many of them had been treated for other diseases for months, or even years, before leprosy was diagnosed. Often a patient had seen several physicians before the disease was recognized.

It seems to me that the chief fault lies in the family doctor's not thinking of leprosy as a possibility when dealing with clinical manifestations of an unusual nature.

Leprosy is such a rare disease that it seldom enters into the physician's mind, and he thinks of the commoner diseases to explain the patient's complaints. Carelessness in the physical examination and the failure to search for objective findings are other faults which delay an early diagnosis. Finally, the general lack of knowledge of the proper technic for making skin smears for the bacteriologic diagnosis completes the story. Should the practitioners of the Gulf states, and particularly those in Louisiana, Texas and Florida, think of leprosy whenever a diagnosis is not clear-cut they might avoid some embarrassing mistakes. Earlier diagnosis would benefit not only the patient, but, from a prophylactic standpoint, the community as well.

Leprosy, like tuberculosis, is a chronic disease wherein the greatest good can be done while it is still in its early stages. Once either of these two chronic infections has taken a strong hold upon the host, it is perhaps too late to expect real benefit from any form of therapy. This is indeed most true in leprosy.

What then are the early symptoms and manifestations of leprosy that make its diagnosis so difficult? Well-known dermatologists[1, 2, 3] teach that leprosy is most often simulated by syphilis, granuloma fungoides, lupus vulgaris, syringomyelia, Reynaud's disease, morphea, and vitiligo. Among the 425 patients examined and interviewed at Carville, the diseases for which they were most often treated when they first consulted a physician were syphilis, rheumatism, neuritis, rhinitis, sinusitis, tuberculosis, eczema, ringworm, pellagra or some other dermatoses, and peripheral vascular diseases.

SYPHILIS

It is not unusual for leprosy patients to give a history of having received active treatment for syphilis for several months or even years before the true nature of their malady was discovered. The fact that the cutaneous lesions of the two diseases may be similar is the primary reason for the mistake. Further confusion is created by the frequency of a positive serology in leprosy.

In a study organized and sponsored by the U. S. Public Health Service[4] in 1935, 13 different serologic tests for syphilis were performed on blood samples obtained from 50 presumably non-syphilitic patients of the Carville Marine Hospital. Some of these tests were of the complement fixation type and others of the precipitation type. The positive reactions for the different tests varied from 40 to 76 per cent with an average of 53.4 per cent. Since the Wassermann, Kahn and other blood tests for syphilis have recently become so popular as to be almost a routine part of every physical examination, it is not surprising that such mistakes are so common. The average physician does not know that false positive Wassermann reactions are so frequent in leprosy. They should not be too eager to make a snapshot diagnosis of syphilis merely upon obtaining a positive serology. Not only should the test be repeated, but the possibility of consistently false positives should be remembered as this is the rule in leprosy. This error should be eliminated before a diagnosis of syphilis is made and the patient subjected to a prolonged course of arsenicals and iodides which are so detrimental in leprosy.

In reviewing the 425 cases at Carville, the Wassermann and Kahn serologic tests for syphilis, one or both were found positive in 238 cases or 56 per cent, and both were negative in 187. Of these patients, 154 (36 per cent) volunteered the information that they had been administered intravenous and other medications for the treatment of syphilis prior to their being diagnosed as lepers. Indeed even a few patients, who were found to have a negative Wassermann and Kahn serology upon admission here, had been subjected to this treatment, presumably as a therapeutic test. The duration of the antiluetic therapy varied from several months to as long as five years. In the majority of the patients, this treatment seems to have aggravated their leprosy. In fact, it was often this unimprovement and the persistence of a positive serology that

awakened the physician's realization of his error. Sometimes it was the unfortunate patient, dissatisfied with his progress, who sought medical attention elsewhere. Sooner or later, the proper bacteriologic smears were made and revealed the acid-fast offenders.

CASE NO. 1

A white seaman, 55 years of age, was admitted from a city on the Atlantic seaboard. During early life he had spent several years in Texas and Mexico. In later life he had traveled much by sea, visiting several tropical countries. In his past medical history, he had had the usual childhood diseases, smallpox, typhoid fever, influenza, and gonorrhea, but denied a history of syphilis.

Five years prior to his admission to the Federal Leprosarium, he first noticed that spots had appeared on both wrists. He also had a chronic nasal catarrh at about that time. Within the next few years, his earlobes became swollen, and nodules appeared on his face. He then consulted a physician in New York, who, after taking a blood test, informed him he had syphilis and started him on treatment. Not being satisfied, he consulted a number of other physicians. They were all of the same opinion. While making numerous trips at sea, he saw other doctors, not only in the United States ports from New York to California, but also in some foreign ports of Brazil, Argentina and Egypt. In all, he believes that he consulted at least twenty physicians. None of them diagnosed his case correctly and most of them treated him for syphilis. Under this treatment, his disease became aggravated. New nodules developed and the skin of his face, hands, and feet became swollen. He continued to consult different physicians without success. Finally he met a doctor from Mexico City who told him it looked like leprosy. Laboratory tests at a City Board of Health proved that this suspicion was correct, and he was sent to the Carville Marine Hospital for treatment.

Examination upon his arrival here showed that he had an advanced lepromatous type of the disease, diagnosable at first glance to an experienced physician. Skin smears were bacteriologically positive for *B. hansenii*. Routine sputum examination was positive for acid-fast bacilli (*B. hansenii*). The blood serologic survey, showed the following findings:

Kolmer complement fixation	21—
Kahn precipitation test	344
Acosta reaction	44—
Kline diagnostic test	4+
Kline exclusive test	4+

CASE NO. 2

A white male of Mexican extraction, 36 years of age, was born in Brownsville, Texas, where he had lived all his life. He knew of no leprosy in his family or intimate friends. In his past life he had had the usual childhood diseases and gonorrhea one year ago, but denied a syphilitic infection.

About four years before admission to this hospital, his face became swollen and spots appeared on his body. He saw a doctor, who, after an examination including a blood test, told him he had syphilis and gave him "shots in the arms and hips." Instead of improving, he gradually became worse. His face became progressively covered with nodular masses, and swollen nodules formed on the ears, arms, and legs. Later he noticed a loss of sensation in places on his legs, hands and forearms. Other nodules developed on his body. About two months before admission to Carville, he went to another physician, who told him he had leprosy and made arrangements for his trip to the National Leprosarium at Carville, Louisiana.

Entrance examination showed confluent lepromatous masses over the forehead and face and discrete nodules over the ears, nose, abdomen, and back. The skin of his forehead and face was diffusely thickened and of a brownish discoloration. Deep ulcerations were present on the front of both legs just above the ankles. Anesthesia was demonstrable over both feet and legs as high as the knees, and over the ulnar surfaces of both forearms, extending from the tips of the outer three fingers almost to the elbows. Smears of various lesions were positive for *B. hansenii*. Both the blood Wassermann and Kahn reactions were positive.

RHEUMATISM

Among the early complaints of some lepers are pain and swelling of the hands and feet and stiffness and numbness of the extremities. Contraction and distortion of the fingers and toes may also be fairly early manifestations. In the group of 425 patients reviewed here, there were 19 with such symptoms who gave a history of having had their disability primarily diagnosed as "rheumatism" or arthritis and of having been given more or less extensive treatment for such a condition. One of these patients, who had recurrent attacks of chills and fever in addition to painful extremities, was treated for acute rheumatic fever for several months. Another with evanescent tubercles, fever and swollen extremities was treated on several occasions for acute rheumatic fever and erythema nodosum.

CASE NO. 3

A Filipino male, 29 years of age, had lived in this country for 14 years. A paternal uncle in the Philippines was the only leper in his family.

He had had several childhood diseases but denied any venereal disease.

About one year prior to leaving the Philippines, he first noticed that he did not have normal sensation in his right foot. After his arrival in this country, he had pains in the legs and later in the forearms. His feet and hands began to swell, first the right foot, then the other foot, and later both hands. There were a few brown spots on his right leg. At that time a doctor started treating him for "rheumatism." After two years of this treatment his condition was not improved. In the meantime numbness of the feet and hands developed. As the disease progressed, more discolored spots appeared on several parts of his body. During this time he had unsuccessfully consulted other doctors. Finally he attended a clinic in Stockton, California. There his disease was recognized and his case reported to the State Board of Health, and in a few months he was sent to the National Leprosarium at Carville, Louisiana.

Examination upon admission here revealed discrete nodules on the face and both forearms. The outer halves of the eyebrows were scanty. There was a leprous scleroderma or swelling and induration of the lower legs and feet. Areas of anesthesia were found over the feet and legs as high as the knees and over the hands and the ulnar surfaces of the forearms. Skin smears were positive for *M. leprae*. In the serologic survey the Kolmer and Kline reactions were positive but the Kahn test was negative.

NEURITIS

The early neuritic pains of neural leprosy often lead the doctor to treat such a patient for a simple peripheral neuritis. Even after muscular atrophy and contractures of the extremities have developed, the doctor may not think of leprosy. In the group of patients under study, there were at least 10 who had been told that they had neuritis and had been treated for such a condition. One of them received this treatment for a number of years, during which time he saw at least two physicians who made the same diagnosis. Another patient was treated for alcoholic neuritis for over a year before the true nature of his nerve involvement was recognized.

CASE NO. 4

A white male, 76 years of age, after spending 10 years in Brownsville, Texas, moved to the Panhandle, where he had resided for the last 18 years. There was no leprosy in his family. He had had the usual childhood diseases and typhoid fever but denied all venereal infections.

About 15 years ago he first noticed a numbness of the right fourth and fifth toes, together with an eruption of large tan-colored spots on his body and legs. These spots became lighter and gradually faded away. About four years ago there was a tingling and numbness in his feet. In a few months' time he noticed a numbness in the right middle finger and the left index finger.

He first consulted a doctor about four years ago. This physician told him that he had neuritis. During the last two years the numbness in his feet and hands spread in spite of the treatment he was receiving for neuritis. He then consulted two other physicians; both told him he had neuritis and treated him for that disease. About eight months ago large red spots again appeared on his body, legs, and arms. These gradually turned darker and some of them faded in the center. Another doctor, who was consulted at that time, made the correct diagnosis and started treating him with chaulmoogra oil until the proper arrangements could be made to send him to the Carville Marine Hospital.

Examination upon admission here showed large circinate reddish-brown macules on the external surfaces of the arms and legs and over the back. Those on the back were fading in the center but retained a pigmented infiltrated margin. Definite anesthesia was found over the center of the larger macules and over areas of the hands and feet. There was a slight atrophy of the interosseous muscles of the hands. Smears of the skin lesions and nasal mucosa were positive for *B. hansenii*. The blood Wassermann and Kahn tests were negative. The diagnosis was maculo-anesthetic leprosy.

SINUSITIS

There were eight patients whose early complaint of chronic nasal catarrh, with obstruction and sometimes epistaxis, had led to their treatment for simple rhinitis or sinusitis. One of them had been subjected to a submucous resection and two others had had tonsillectomies performed without relief.

CASE NO. 5

A male, Chinese, 19 years of age, was born in Oregon but lived in Canton, China, between the ages of four and 12 years. He knew of no family or other contact with leprosy.

Two and a half years ago he first noticed a slowly progressive nasal catarrh. This gradually produced almost complete nasal obstruction and necessitated mouth breathing. A doctor, whom he consulted at that time, informed him he had sinusitis and enlarged tonsils and adenoids. He advised the removal of the tonsils and adenoids. This the patient could not financially afford so he used simple local medications without improvement.

About six months ago a small spot appeared on his left cheek. In another month some spots appeared on his legs. As they did not itch, he paid

little attention to them at first. When they grew larger and became ring-shaped he again sought medical advice. This time a physician treated him for ring-worm. When the skin condition did not improve after months of treatment, smears were taken and a diagnosis of leprosy was made. He was then sent to the National Leprosarium at Carville, Louisiana.

Examination upon admission here showed scattered discrete nodules on the chin, ear lobes, thighs, legs and forearms. There was a large infiltrated erythematous patch on the left cheek. Several circinate macules with infiltrated borders and atrophic anesthetic centers were present on the buttocks, thighs, legs, arms, and forearms. There was anesthesia of the feet and lower legs and diminished pain sensation of the little and index fingers. Smears of the skin lesions were positive for *B. hansenii.*

TUBERCULOSIS

It is not rare for leprosy patients to complain of general lassitude, weakness, loss of weight, and fever. These symptoms are very suggestive of tuberculosis. In such cases, should an examination of the sputum reveal the presence of an acid-fast organism, it is not surprising that a mistaken diagnosis is made. Such an erroneous diagnosis was made in six of the patients in this study. One of them was treated in a sanatorium for a number of months in spite of a negative x-ray of the chest, until a physician familiar with leprosy recognized the true condition.

Few general practitioners know that acid-fast bacilli are frequently found in the sputum of lepers. Among 243 patients of this group, in whom a single routine sputum examination was done, 93, or 39 per cent, were found positive for acid-fast bacilli (*M. leprae*); thus the finding of acid-fast bacilli in the sputum of persons living where leprosy is endemic is not conclusive evidence that they have pulmonary tuberculosis. The Hansen bacilli in the sputum of lepers no doubt originate from the frequent leprotic lesions in the nasal, laryngeal and buccal mucosa. Only occasionally are these bacilli in the sputum grouped in typical globi formation. Thus the only certain way to prove that they are not tubercle bacilli is through negative culture or negative guinea pig inoculation. It is realized that tuberculosis is a common complication of leprosy.[5] This has been proved at autopsies in this hospital in a considerable percentage of cases. During life, pulmonary tuberculosis can best be diagnosed in our patients by physical examination and especially by x-ray films of the lungs. The finding of acid-fast organisms in the sputum of patients in this hospital cannot be used as a means of diagnosing pulmonary tuberculosis. In cases of active or suspected tuberculosis in lepers, when the sputum is positive, the only way to be certain that it is the Koch and not the Hansen bacillus is to resort to cultures or animal inoculations of the sputum. This has been done repeatedly in this institution. In a previous study, Denney[6] reported on the sputum examination of 210 lepers for acid-fast bacilli. In 99 of these, positive smears were obtained (47 per cent). Culture of the sputum of 75 of those showing acid-fast bacilli yielded a growth of tubercle bacilli in 14 cases, all of whom had clinical pulmonary tuberculosis. Six guinea pigs inoculated with sputum producing acid-fast colonies developed tuberculosis.

CASE NO. 6

A Filipino male, 45 years of age, gave a negative family and contact history of leprosy. He had left the Philippine Islands 12 years ago and had lived in Louisiana for five years. During childhood he had had smallpox, in 1918 influenza, and in 1934 a tonsillectomy.

Within the last few years he had complained of chronic bronchitis and bronchial asthma with shortness of breath. There had been some febrile episodes and a loss of weight. Several months ago he was sent to a hospital for a complete physical examination. During this survey it was found that his sputum was repeatedly positive for acid-fast bacilli. In spite of an inconclusive chest x-ray, a diagnosis of pulmonary tuberculosis was made and he was hospitalized for the treatment of that disease. A visiting physician, familiar with leprosy, saw the patient and, suspecting the correct diagnosis, requested a bacteriologic examination of some skin lesions. These proved positive for *B. hansenii,* and he was transferred to the U. S. Marine Hospital at Carville, Louisiana.

Examination upon admission showed a few leprous nodules on the face, brow, ears, and limbs. There was a diffuse brownish thickening of the face, forehead, and ears. A widespread thickening of the feet and legs and of the hands was present. Anesthesia could be demonstrated from the toes to

slightly above the knees and from the fingers to the elbows. The ulnar nerves were palpably enlarged and there was atrophy of the interosseous muscles of the hands, with early contraction of the little fingers.

Skin and nasal smears showed the presence of Hansen bacilli. A routine sputum examination showed positive for acid-fast bacilli. Physical examination of the lungs was essentially normal. X-ray films of the chest showed both lung fields to be clear and free from evidence of active tuberculosis. The Wassermann and Kahn tests were negative. A diagnosis of mixed type of leprosy was made, and that of pulmonary tuberculosis was disproved.

MISCELLANEOUS

Less frequently confusing and misdiagnosed than the above major diseases, have been many other diseases. Among them the following are included: eczema, six cases; ringworm, five cases; pellagra, nephritis, and peripheral vascular diseases, three cases each; malaria, two cases; and lupus vulgaris, syringomyelia, and frostbite, one case each.

CASE NO. 7

A white man, aged 52 years, a native of Georgia, was admitted from that state. There was no leprosy in his family or intimate associates. He had had typhoid fever and gonorrhea in early adult life but denied syphilis. He had lived in Cuba in 1898, in Mexico in 1904 and 1905, and in Texas in 1906.

The first manifestations of leprosy, an eruption over his legs and feet, developed 14 years after his leaving Texas. Within a few months, nodules appeared on the face, body, and upper extremities. Numbness of the feet was noted almost from the onset of the disease. He consulted several physicians during the ten years before the correct diagnosis was made. Most of them told him he had an eczema or some other form of chronic skin disease. Various treatments were instituted for the dermatitis, without benefit. He states that he consulted 12 physicians, all of whom were puzzled over his case. One of them even told him he had syphilis and gave him several intravenous injections, which made him worse. Several of the doctors insisted that he should have all of his teeth extracted in the hope that this might help clear up his eczema. He finally consented to this and, although he sacrificed many good teeth, no favorable results followed. Finally he sought medical advice at the U. S. Marine Hospital at Savannah, Georgia, where the diagnosis of leprosy was made and from where he was transferred to the U: S. Marine Hospital at Carville, Louisiana.

Admission examination shewed a frank case of lepromatous leprosy, even to a leonine facies. Nodular lesions were widespread over the face, body, and the extremities. The ulnar nerves were enlarged and there was anesthesia of the hands and lower forearms as well as of the feet and lower legs. Beginning contracture of the little fingers was observed. Small ulcers were present on the fingers and lower parts of the legs. The eyebrows were missing. Skin smears were positive for *M. leprae*. The blood Wassermann and Kahn reactions were positive and negative respectively.

Some patients reported that they had been treated erroneously for two or more diseases before a correct diagnosis was made.

CASE NO. 8

A colored woman, a native and resident of Louisiana, was 36 years of age when admitted to the U. S. Marine Hospital, Carville, Louisiana. Her brother had leprosy before her and one of her two children was to contract it later. She denied having had any of the venereal diseases.

Over four years prior to her admission, she first experienced repeated attacks of chills and fever with general malaise. A doctor at that time treated her for malaria. Several months later she developed pains in the limbs with swelling of the hands and feet. She was then treated by another physician for rheumatism. Her swollen extremities did not improve, and after several months small, raised bumps came out on her face, forearms, and legs. She again had recurrent attacks of fever. A little later her ears became enlarged and nodular. A doctor at that time told her that she had syphilis and gave her several injections in the veins of her arms. Instead of improving, more nodules broke out on her face and extremities. She consulted another doctor who sent her to the Charity Hospital in New Orleans. There the correct diagnosis was made and she was transferred to the Carville Leprosarium.

Upon admission she presented a clear-cut clinical picture of a mixed type of leprosy. Leprotic nodules were sprinkled over the forehead, cheeks, nose, upper lip, and ears. There were also small lepromata on the upper and lower extremities from the wrists to the shoulders and from the ankles to the hips. White patches were scattered over the back and chest. Diminished sensation was present from the tips of the fingers to the wrists and along the ulna surfaces of the forearms. Partial anesthesia over the feet and lower legs was also noted. The little fingers showed an early contraction. Bacterioscopic examination of the lesions were positive for Hansen bacilli. A routine sputum examination was negative for acid-fast bacilli. The blood Wassermann and Kahn reactions, at first negative, became positive as the disease progressed.

The difficulties of the early diagnosis of leprosy are many. In the first place the

physician hesitates to make such a diagnosis, as it means the separation of the patient from his home and family. Sometimes it is the patient who does not seek medical advice when he first observes the signs of the disease. If there are other cases in the family, he may be suspicious about his condition and wish to hide it as long as possible for fear of its confirmation.

If the general practitioners of the Gulf states kept the possibility of this disease in mind, they would recognize it more frequently. Familiarity with the fundamental signs and symptoms of early leprosy would render them better able to diagnose it before it is far advanced. Early diagnosis is important, not only from a prophylactic standpoint, for the welfare of the community, but also from a therapeutic standpoint for the good of the patient. If patients were sent to the National Leprosarium in an earlier stage of the disease than they are at present, more of them would be discharged as arrested, and this would encourage others to seek early treatment.

In the early lepromatous cases with only a few nodules the diagnosis will usually be missed unless one is leprosy-minded since the individual lesions of leprosy are not pathognomonically characteristic.[7]

In frank lepromatous leprosy with multiple and confluent lesions the diagnosis is generally easy. But it must be substantiated by the demonstration of typical acid-fast organisms in smears made from the lesions. Since these bacilli are present in such large numbers and frequently in typical groups, the globi, there can be no doubt of the diagnosis when the proper bacteriologic technic is used. Southern physicians should become familiar with this technic.

BACTERIOLOGIC TECHNIC

An incision is made through the skin at the edge of the lesion. In diffuse infiltrations, the areas of predilection for searching for the Hansen bacillus are the skin of the forehead, cheeks and ear lobes. Compression of the base of the lesion between the thumb and finger, so as to drain it of its blood supply, is a good preliminary procedure. Care should be taken not to make the incisions so deep as to draw blood from the underlying tissues. Smears are made by scraping the serum or tissue juices from the edges of the incision with the blade of a scalpel. These smears are stained by the regular acid-fast technic of Ziehl-Neelsen.

Thus in lepromatous leprosy the diagnosis is readily confirmed if the disease is suspected. That many physicians do not consider leprosy is the reason so many cases escape early diagnosis and are so frequently treated as syphilis or other diseases. On the other hand, a positive diagnosis of leprosy should never be made in the lepromatous type until bacteriologic confirmation is obtained.

Superficial lymph gland puncture, and nasal septum scrapings are other means of obtaining material for the bacterioscopic diagnosis of leprosy. General practitioners are warned, however, to rely mostly upon properly made skin smears, since tubercle bacilli may occasionally be encountered in lymph nodes and nasal secretions.

In maculo-anesthetic leprosy, the diagnosis is more difficult, since the bacteriologic examination is so often negative. In this type of the disease, a negative laboratory examination does not eliminate leprosy. In such cases reliance must be placed upon the clinical findings.

The typical lesion of maculo-anesthetic leprosy is the lepride, an annular macule with erythematous edges and a depigmented center. The demonstration of a central anesthesia in such a lesion is significant of leprosy. A peripheral zonal distribution of anesthesia of the extremities with muscular atrophy of hands and feet and enlargement of peripherial nerves will assist in making the diagnosis.

The examiner should know the proper method of testing for anesthesia, which includes diminution in touch, pain and thermal sensations. To test for loss of pain sensation, use the point and head of a pin. The patient should close his eyes and say whether he feels the point or head of the pin. To test for loss of touch sensation,

use a wisp of cotton, as it is essential to avoid making any pressure. The patient should close his eyes and say "yes," every time he feels the touch of the cotton. To test for loss of thermal sensation, use two test tubes, one filled with ice-cold water and the other with hot water.

Palpation of the peripheral nerve trunks, particularly the ulnars, for enlargement, induration, and irregularities is important. Look for beginning contractures of the fingers, especially the little finger, and atrophy of the small muscles of the hand. Absorption of the small bones, such as the phalangeals, metatarsals and metacarpals, are also significant of neural leprosy.

Tuberculoid leprosy is the form of the disease which most easily escapes the suspicion of the physician. Such cases have often been misdiagnosed as Böeck's sarcoids or lupus vulgaris. An obstacle to the diagnoses is that the bacteriologic smears are usually negative except in the early lesions. For this reason, biopsies should be taken, which to the experienced leprologist will reveal the suggestive histology. Southern pathologists are urged to become more familiar with the histopathology of this type of leprosy in order to avoid misinterpretation.

CONCLUSION

The plea is again made to the family physician, especially in endemic areas, to think more often of leprosy so as to avoid the common mistake of treating it as another disease until it has reached a far advanced stage.

REFERENCES

1. Sutton, R. L., and Sutton R. L., Jr.: Diseases of the Skin, 9th ed. St. Louis, C. V. Mosby Co., 1935, p. 1058.

2. Stelwagan, H. W.: Diseases of the Skin, 9th ed. Philadelphia, W. B. Saunders Co., 1921, p. 979.

3. Ormsby, O. S.: Diseases of the Skin, 5th ed. Philadelphia, Lea and Febiger, 1937, p. 937.

4. Venereal Disease Information: Vol. 16, No. 6, June, 1935. Reprint No. 52, U. S. Public Health Service.

5. Johansen, F. A.: Similarities in the manifestations of leprosy and tuberculosis, Am. Rev. Tuberculosis, 35:609, 1937.

6. Denney, O. E.: The national leper home (United States Marine Hospital), Carville, La. Review of the more important activities during the fiscal year ended June 30, 1929, Pub. Health Reports, 44:3175, 1929.

7. Hopkins, R., and Denney, O. E.: Comments on some of the characteristics of nodular leprosy, Internat. Clinics, 2:117, 1931.

ALLERGIC RESPIRATORY DISEASE AND PNEUMONIA IN CHILDHOOD

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It has been estimated from large numbers of cases that about one-third of all asthmatics date the onset of their allergic troubles to the first decade of life. Of these, the majority start before the sixth year.[1]

During this period, the clinical manifestations of the disease are often unlike the asthmatic paroxysm seen in the adult. The seizures are likely to be much more insidious. They often begin with nasal symptoms resembling a "cold," and soon develop into cough, shortness of breath or wheezing respiration, vomiting, and fever. If the chest is examined at this phase of the attack, the examiner is very likely to be impressed by the presence of many scattered rales of various types and areas of impaired resonance. These findings, occurring concomitantly with constitutional manifestations of infection, that is, fever and leukocytosis, are conducive to the diagnosis of bronchopneumonia. Although it is a special type of pneumonitis, this pneumopathy is erroneously called pneumonia and treated as such. Its management, prognosis and course are different.

Allergic respiratory disease is not to be confused with the acute infectious types of bronchopulmonary disease, so commonly seen in childhood, which at times produce wheezing respiration. The whistling or wheezy rale is not specific of allergic respiratory disease, being due to any physical factor which will produce narrowing of the air passage. The differentiation of allergic from infectious types of respiratory disease has been discussed freely in the literature. It is the purpose of this paper to point out the nature of the pneumopathy which so

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often complicates allergic respiratory disease or bronchial asthma, particularly in childhood.

A word about the pathogenesis of this phenomenon is important. Pathologically, the allergic reaction consists of "hive formation." An attack of hay fever, allergic bronchitis or asthma, a positive skin test, or allergic urticaria are all pathologically the same in that they represent edema and eosinophil cellular infiltration.[2] An allergic reaction in that part of the respiratory tract bearing mucous glands is associated with the production of large quantities of mucus. Since the adult is capable of clearing his respiratory tract much more efficiently than the child, his respiratory tree is kept fairly well aerated. On examination, his chest usually reveals dry sibilant wheezing rales. Such a spell of asthma could be called "dry," and is usually relieved by an injection of epinephrin or by the common drugs employed. In contrast, the child often retains these secretions which become inspissated into tenacious plugs. Should the picture become complicated by dehydration, which is easily possible from loss of fluids in vomitus or through the expired air, inspissation of the plugs is even greater, and atelectasis an eventuality.

These atelectatic areas vary in extent from microscopic size to others large enough to involve an entire lobe, depending on the size of the bronchus occluded. The concomitant poor drainage allows the usual organisms which inhabit all respiratory tracts to produce a low-grade pneumonitis distal to the plugs. Areas of impaired resonance, distant breath sounds, bronchial breathing, and moist and dry rales are not uncommonly found on examination of the chest. Temperature of 103° F. or 104° F. is frequently present. X-ray examination will reveal shadows of atelectatic areas and pneumonitis commensurate with the pathology present. The shadows are likely to be very evanescent, since, like allergic inflammation elsewhere, the lesion is usually reversible. At this time epinephrin or ephedrin has no effect, or if so, it is very transient. Such a spell of asthma could be called "moist" in contradistinction to the "dry" asthma usually seen in the adult. It occurs much more commonly in childhood than adult life.

MANAGEMENT OF ATTACK

Obviously, the management of this attack is unlike the management of infectious pneumonia. Medical aid should be directed toward liberation of the plugs and reduction of the allergic edema. This is accomplished by two procedures.

First, separate the patient and the offending allergen. When the offender is suspected of being an environmental substance (inhalant), sending the patient to a hospital room will usually remove him from contact with the common household allergens. Where the offender is suspected of being some outside air-borne substance, the patient and offender may be separated by the use of an air filter, or by keeping the patient in a room with windows and doors closed. In such a room, the air-borne material will soon gravitate, and the air be relatively free of outside allergens. When the patient and allergen are successfully separated, it is not uncommon to see the whole process subside in 24 to 48 hours without the addition of any other medication than was formerly administered. This sudden change is associated with subsidence of the allergic edema and subsequent liberation of the mucous plugs.

Secondly, correct medication should be employed to aid the process. Attention should be directed to re-hydration. The amount of fluid lost should be roughly estimated and replaced. It may be given by mouth, or parenterally if necessary. Epinephrin, ephedrin-like drugs, or theophyllin-ethylenediamine (aminophyllin), should be given alone or in combination regularly every four to six hours. Of the expectorant drugs available, ipecac seems to be the most promising. This may be associated with its emetic action. It should be given as syrup of ipecac in one or two dram doses until emesis is produced. It is not unusual to see several mucous casts liberated during a vio-

lent seizure of emesis. Where atelectasis involves an entire lobe, and above measures fail, the help of a bronchoscopist may be necessary to aspirate the plugs. Fortunately, this is not often necessary.

With the institution of proper drainage, aeration of the bronchopulmonary tree soon follows. The fever subsides, labored respiration improves, and the abnormal physical signs gradually disappear. It is rarely necessary to employ sulfonamides, and they should certainly not be used until proper drainage is secured. The great majority of these patients are well on the road to recovery within a few hours following proper aeration of the respiratory tree.

CONCLUSIONS

1. The most common pneumopathy complicating an attack of bronchial asthma in childhood is not pneumonia in the usual sense of the word, but atelectasis produced by allergic edema and mucous plugs. This phenomenon occurs in adults also, but is much more common in childhood.

2. Secondary infection caused by organisms of low virulence occurs distal to the plugs. This is responsible for the constitutional manifestations of infection that ensue. The prognosis of the attack is good. Practically all patients recover from the individual attack. Recurrences are common, however.

3. Proper management consists of methods directed toward obtaining proper drainage and ventilation of the respiratory tree.

4. Sulfonamide chemotherapy is rarely necessary and is only indicated when the element of infection continues after proper drainage is instituted. The sulfonamides do not produce the characteristic response if given to these patients.

REFERENCES

1. Coca, A. F., Walzer, and Thommen, A. A.: Asthma and Hay Fever in Theory and Practice. Springfield, Illinois, Charles C. Thomas, 1931. Chapter V, p. 173.

2. Kline, B. S., and Young, A. M.: Normergic and allergic inflammation, J. Allergy, 6:247, 1935.

VENEREAL DISEASES AMONG SELECTEES AND VOLUNTEERS IN LOUISIANA*

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AND
R. H. ONSTOTT, M. D.†
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In October of 1940, with the advent of the Selective Training and Service Act, arrangements were made at the request of the War Department for the Louisiana State Health Department Laboratories to perform serologic tests for syphilis on all individuals examined by the Medical Examiner of the Local Selective Service Board. In this state 94 local Selective Boards were established with medical officers to examine both selectees from the National Lottery and individuals who volunteered under provisions of this Act. In addition, there were nine Medical Advisory Boards established for consultation and review purposes. Volunteers for enlistment in the regular Army were examined directly by the Army Medical Corps and are not included.

The local boards began medical examinations about the middle of November 1940. Blood for serologic tests for syphilis was drawn by the local board at the examination and was forwarded to the State Health Department Laboratory. The results of the test were reported in triplicate (see figure 1), the copies being distributed as follows: One copy to the local draft board medical examiner, one copy to the State Health Department, and one copy to the U. S. Public Health Service. In the absence of clinical findings diagnostic of syphilis, a positive or doubtful serologic test was followed routinely by a recent specimen or specimens, and the diagnosis of syphilis was based on confirmed positive serologic test, or a test which was repeatedly doubtful.

The data forming the basis of this report were assembled by the U. S. Public Health

*Read before the Orleans Parish Medical Society, December 8, 1941.

†From the Louisiana State Department of Health, New Orleans, Louisiana.

FIGURE 1

RECORD FORM

DIVISION OF VENEREAL DISEASES, LOUISIANA STATE HEALTH DEPT.
IN COOPERATION WITH U. S. PUBLIC HEALTH SERVICE

1. Order No.....Local Board..... State, Louisiana
(From "Notice to Appear before Local Board" DSS Form 60)

2. Date specimen drawn.....

3. .....
(Last name) (First name) (Middle name)

4. ..... Urban ☐ Rural ☐
Permanent address: (Street or P. O. box) (Town or city) (County) (State)

5. Birth date ..... Race.....
(Month) (Day) (Year)

6. Suspicious open lesions: Primary ☐ Secondary ☐

7. GC discharge: Yes ☐ No ☐ Smear: Pos. ☐ Neg. ☐ Taken but not yet examined ☐ Not done ☐

....., M. D.
Examining Physician.

LABORATORY REPORT OF SEROLOGIC BLOOD TEST

8. Lab. specimen No.....

	Neg.	Pos.	Doubt.	Specimen unsatisfactory
9. Name of test.....	☐	☐	☐	☐

10. ....
(Name and address of laboratory) *Laboratory Director.*

(TO STATE DEPT.) Date of Report.....

16—18064

Service and shortly after September 1, 1941, when the results of examinations on the first two million selectees and volunteers had accumulated, detailed tabulations were made, giving the results of examinations by age group, race, place of residence—both political subdivision and whether urban or rural. These tabulations for Louisiana were based on 48,459 individuals examined during the first ten months of operation of the Selective Service Act. Of these, 547 had no clinical entry nor laboratory tests for syphilis, leaving 47,912 individuals about whom there was information as to the presence or absence of syphilis. Of these only four had no blood tests made (see table 1).

In the analysis of the data it was found, as expected, that the individuals in the older age group had a higher prevalence rate and

TABLE 1

RESULTS OF SEROLOGIC TESTS FOR SYPHILIS AMONG 48,459 SELECTEES AND VOLUNTEERS EXAMINED BY SELECTIVE SERVICE BOARDS IN LOUISIANA

	—Age Given— White	Non-White	Age Data Missing	Total
Early lesions				
Primary sero neg.	25	21	2	48
Primary sero pos.	1	20	2	23
Primary sero doubtful	0	4	0	4
Secondary sero pos.	3	17	2	22
Secondary sero doubtful	0	2	0	2
No STS done	3	1	0	4
No demonstrable lesions				
Serology positive	644	4,318	381	5,343
Serology doubtful	117	346	41	504
Total syphilis	793	4,729	428	5,950
Apparently non-syphilitic—				
Serology negative	25,035	15,498	1,429	41,962
Total examined	25,828	20,227	1,857	47,912
No data	261	264	22	547
Total	26,089	20,491	1,879	48,459
Syphilis prevalence per 1,000	30.7	233.8	230.5	124.2

also that the negro had higher rates throughout than the white (table 2). The rate for the white race began at 12.7 per 1,000 in the age group, 18-20, and increased to 87.3 in the age group, 36-40, while in the colored the rates began at 109.9 per 1,000 in the age group, 18-20, and increased to 432.2 per 1,000 in the age group, 36-40.

TABLE 2

PREVALENCE OF SYPHILIS BY AGE AND COLOR IN 46,055 SELECTEES AND VOLUNTEERS IN LOUISIANA

	White			Colored			Other			Total		
Age Group	No. Exam.	No Syphilis	Rate per 1,000	No. Exam.	No Syphilis	Rate per 1,000	No. Exam.	No Syphilis	Rate per 1,000	No. Exam.	No Syphilis	Rate per 1,000
18-20	711	9	12.7	2,502	275	109.9	62	6	96.8	3,275	290	88.5
21-25	14,439	286	19.8	8,844	1,721	194.6	459	35	76.3	23,742	2,042	86.0
26-30	6,887	263	38.2	4,777	1,425	298.3	244	27	110.7	11,908	1,715	144.0
31-35	3,562	215	60.4	3,008	1,124	373.7	131	31	236.6	6,701	1,370	204.4
36-40	229	20	87.3	192	83	432.3	8	2	*	429	105	244.8
Total	25,828	793	30.7	19,323	4,628	239.5	904	101	111.7	46,055	5,522	119.9

*Sample too small for reliable conclusion.

Over-all age groups just over 3 per cent of the white and just under 24 per cent of the colored were found to have syphilis.

It was found that in the crude figures for both white and colored the rates for individuals drawn from urban areas were higher than for those coming from the rural parts of the state. In order to make direct comparison and to correct for the differences in the age grouping in these various groups, the rates were corrected for age and the results are portrayed in table 3.

TABLE 3

PREVALENCE OF SYPHILIS AMONG SELECTEES AND VOLUNTEERS—CORRECTED FOR AGE*

	Urban		Rural	
	No. Exam.	Rate per 1,000	No. Exam.	Rate per 1,000
White	12,535	42.7	12,217	31.0
Colored	9,071	310.3	7,471	247.1
Total	21,606	136.4	19,688	106.6

*The standard population used was estimated from age group given by U. S. Census Bureau 1940 population for Louisiana; distributed in the exclusive age groups 21-35, as follows: white: age 21-25, 24.8 per cent; age 26-30, 22.4 per cent; age 31-35, 17.7 per cent; colored: 21-25, 12.9 per cent; age 26-30, 11.4 per cent; age 31-35, 10.8 per cent.

In the rural areas syphilis was found to be only 72.6 per cent as prevalent as in the urban areas in the white, and 79.6 per cent in the colored,—an over-all rate in the rural areas of 78.2 of that of the urban areas.

The data were also divided to give the prevalence of syphilis among selectees and volunteers. This information was corrected for differences in age grouping and it was found that the volunteers had only a slightly lower prevalence rate than did the selectees (see table 4).

TABLE 4

PREVALENCE OF SYPHILIS IN SELECTEES AND VOLUNTEERS—CORRECTED FOR AGE*

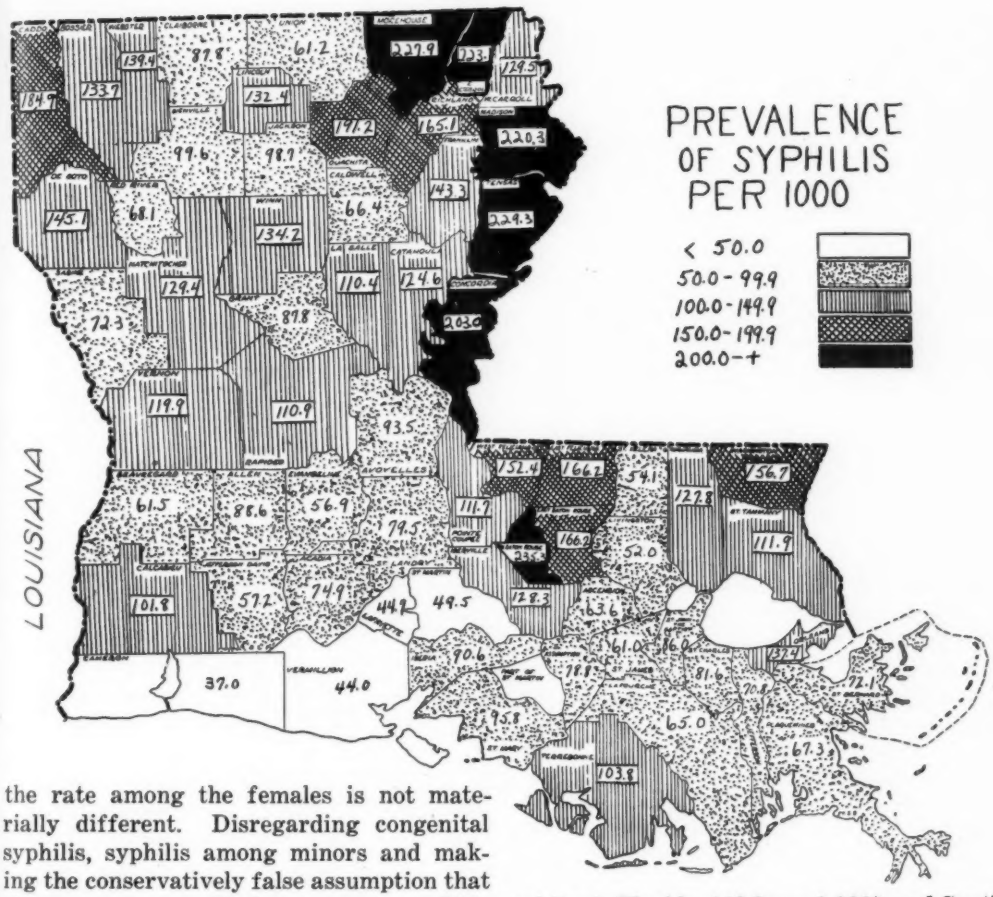
	Volunteers		Selectees	
	No. Exam.	Rate per 1,000	No. Exam.	Rate per 1,000
White	2,227	31.1	22,525	37.8
Colored	3,130	288.7	13,412	283.1
Total	5,357	121.5	35,937	123.9

*The standard population used was estimated from age group given by U. S. Census Bureau 1940 population for Louisiana; distributed in the exclusive age groups 21-35, as follows: white: age 21-25, 24.8 per cent; age 26-30, 22.4 per cent; age 31-35, 17.7 per cent; colored: age 21-25, 12.9 per cent; age 26-30, 11.4 per cent; age 31-35, 10.8 per cent.

Figure 2 portrays graphically the distribution of syphilis in the Louisiana parishes. The rates range from a high of 235.3 per 1,000 in West Baton Rouge Parish to a low of 37.0 per 1,000 in Cameron Parish. These are crude figures and are not corrected for differences in color and age distribution, because such a breakdown would result in too small numbers in age and color specific classes. It is undoubtedly true that differences in color and age distribution account for the major part of the differences, yet these figures do represent the actual conditions existing in the individual parishes.

The most striking thing revealed by these tabulations is the extremely high prevalence of syphilis in Louisiana in the male population. It can reasonably be concluded that

Figure 2



the rate among the females is not materially different. Disregarding congenital syphilis, syphilis among minors and making the conservatively false assumption that older age groups will show no more syphilis than the age group 21-35, it is estimated that there are no less than 150,000 individuals infected with syphilis in Louisiana.

For purposes of comparison figure 3 represents the uncorrected rates by states. These rates are based on the first million selectees and volunteers examined in the nation.[1] It will be noted that the rates range from a low of 5.8 per 1,000 in New Hampshire to a high of 170.1 per 1,000 in Florida.

Examination of the color specific rates for the states reveals that for the whites, Wisconsin (5.1 per 1,000) and Massachusetts (5.5 per 1,000) were low, while for the colored, Massachusetts (76.6 per 1,000) and Rhode Island (106.8 per 1,000) were low. On the other end of the scale, for the whites*, Florida (46.8 per 1,000) and South Carolina (43.9 per 1,000) were high, while for the colored, Florida (401.8 per 1,000) and New Mexico (364.3 per 1,000) were high. Only Florida, South Carolina, Mississippi and Georgia exceed Louisiana in relative severity of their syphilis problems.

GONORRHEA

Of the 48,459 individuals examined, no note was made in 38,475 as to the presence or absence of gonorrhea—presumably very few frank cases of gonorrhea were passed up. There were 9,637 examinations which noted specifically the absence of gonorrhea. There were 347 cases of gonorrhea diag-

*Excludes Arizona (50.5 per 1000) and New Mexico (44.0 per 1000) and Texas (42.6 per 1000) because of the complication of classification of Spanish American as white.

Figure 3

nosed, of which 318 had discharge and 29 were diagnosed on the basis of a positive smear in the absence of discharge.

If it is assumed that all of the 38,475 cases having no entry as to presence or absence of gonorrhea were not infected, there were 347 cases of gonorrhea among the 48,549 individuals examined—or 7.1 per 1,000. This must be considered an absolute minimum figure.

With the rapidly expanding use of sulfonamide drugs in the therapy of gonorrhea, it is believed that the average uncomplicated case of gonorrhea is demonstrable for no longer than 15 days in the type of examination employed here. During a year's time then, the experience of such a group would be nearly 24 times the observed minimum rate of 7.1 per 1,000, or about 168 per 1,000.

SUMMARY

An analysis of the venereal diseases found among the first 48,459 Louisiana selectees and volunteers examined under the provisions of the Selective Training and Service Act of 1940, disclosed that syphilis was diagnosed in 3.07 per cent of the white and 23.95 per cent of the colored. Gonorrhea was discovered in 0.71 per cent of those examined. Louisiana stands fifth in the nation in the severity of its venereal disease problem.

REFERENCE

1. Vonderlehr, R. A., and Usilton, L. J.: Syphilis among selectees and volunteers, J. A. M. A., 117:1350, 1941.

DISCUSSION

Dr. Eugene B. Vickery (New Orleans): I think we have all enjoyed Dr. Onstott's presentation. With the figures he has furnished us of the accurate Wassermann and gonorrheal survey in the selective service organization, the high incidence of venereal disease is again called to our attention. From many standpoints this is a serious problem for the people of this country and state. Its solution lies in adequate education, legislation and treatment of those individuals who are infected with these entirely unnecessary diseases. While the treatment of venereal disease is fairly well standardized, the greatest problem is to bring infected individuals under treatment. This calls for much greater organized effort than previously put forth.

Dr. John H. Musser (New Orleans): I think that Dr. Onstott's figures speak for themselves. It is really astounding the number of people in this state of ours who have positive Wassermanns. Bear in mind, if you will, and as pointed out, it is true that a large proportion of the people who are syphilitic are negroes but in the breakdown of his figures, Dr. Onstott shows very definitely that our rate is so high as to be six times greater in the white population than it is in many states in the north and middle west.

I think that we are wont to look upon the efforts made at the present time to combat syphilis as an

effort which is in a very goodly part taken from the moral point of view. I think that is a mistake. I think we should consider the whole problem not as one of morals, proper living, or what you will, but as one that has to do very definitely with the health of the younger people of this country. When you stop to analyze those figures again you will see how the incidence of syphilis rises to such an extent as to be almost unbelievable in the age group between thirty and forty. You, as physicians, will realize and appreciate that the people who have syphilis are the people who are going to die of cardiovascular disorders of some type, or going to have locomotor ataxia or even may have other expressions of disease dependent upon lues. I think you will see that it is not a question of morality but a question of public health entirely. I think that we, as physicians, should ponder upon what has been said tonight and to the best of our ability back the campaign which is being conducted throughout the country to overcome this disease.

It is said that in the last war that more men were invalided as a result of venereal disease than invalided as a result of wounds in battle, and the man loss was almost incomprehensible. I think that same thing should not be permitted to apply to the present time. We have been thrown all of a sudden, and I think to many of us unexpectedly, into a war with another great power and we can not afford to have our young soldiers sitting on the sidelines for treatment of a preventable disease, invalided because of venereal disease. We can not afford to lose such a large proportion of man power as a result of this type of infection. When you think that the draft lists are practically exhausted at the present time and we have only a little better than a million men in the army, you can realize either the standards are too high in the examination of draftees or there is some reason why these men are put aside, kept out of service; and the reason why is because most of these causes of rejection are preventable and in that list, of course, comes syphilis. It is preventable at the onset by the proper prophylactic measures and it is curable early with proper therapy. I think we must realize and face the fact that this problem is such a definite one and it may actually become a problem sufficiently severe so that our war efforts will be unavailing and that we must endorse heartily the campaign to eradicate syphilis, the campaign to get rid of prostitutes or whatever may be the campaigns being carried on at this time, we must do our best to help out those who are working for these purposes.

Dr. N. F. Thiberge (New Orleans): I would like to ask the essayist what rule is followed in the Draft Board in excluding the draftees who have syphilis. Are all those with positive Wassermanns excluded or only those in the contagious phase?

Dr. Onstott (in closing): This is a question which received considerable attention at the time the law was drawn up. Many arguments were presented for the induction of individuals with gonorrhea and with latent syphilis, who had a defined minimum of treatment, and in whom the army could itself complete treatment in a short period of time. The War Department was adamant, however, and would not permit the inducting of anyone diagnosed as having syphilis or gonorrhea. In gonorrhea the individual is deferred for a temporary period and then comes back for re-examination and if free of disease is then inducted. This throws an enormous burden of venereal disease back on the medical profession and health authorities to see that these men receive adequate treatment and are rehabilitated for military duty. It likewise fixes a definite responsibility on the Army to see that the selectees who are inducted and completely free of venereal disease remain so.

NEW ORLEANS
Medical and Surgical Journal

Established 1844

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

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1430 Tulane Avenue

*Resigned August, 1941.

SUBSCRIPTION TERMS: $3.00 per year in advance, postage paid, for the United States; $3.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the eighteenth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

STATE MEDICINE

The physician who is opposed to state medicine, and most physicians are decidedly against Federal care of the sick, must be continuously on the alert to watch out that under the guise of the emergency or under the aegis of war, some plan will be introduced in Congress or possibly by an executive order which will destroy medicine as it exists today. An excellent example of one of the things that the Social Security social workers are planning to put over has to do with a tax of 1 per cent on payrolls which will then allow some $3 a day towards hospitalization cost for workers and their dependents. As Dr. Van Etten, a former president of the American Medical Association, points out—such a plan would not only provide poor medical service but would stimulate broad scale malingering and there would arise an enormous extension of administrative bureaus. He likens this plan to a "plunge into compulsory sickness insurance under a new title and another move into totalitarianism of the European kind." It would appear to the thinker that if this Social Security program, which does not provide for adequacy of hospital service, which will not meet hospital expenses, which will lower medical service, which will require greatly increased hospital facilities and which plan is based on European rather than American experience, would mean a tremendous disruption, almost a destruction of voluntary medical service plans, would ruin the voluntary hospitals and destroy the private practice of medicine. In every way, form and manner it should be fought vigorously and intelligently.

It certainly is unfortunate at the present moment when taxes and Governmental expenses have reached a peak which never before has been attained in the history of the United States, that every one, under the guise of national defense, should attempt to get money from the Government. The physicians seem to be the one exception to this general wide front attack on the Federal treasury. For example, in order to accelerate the training of medical students, nearly every college in the United States has agreed to get the students through in three years, at a cost which will materially increase the expenses of teaching and which financially may be a handicap to the student or to his parent who must budget the cost of his son's medical education for a three year period rather than for a four year period. It has been suggested that the student be aided by loan funds or by scholarships and the suggestion has been brought forth very definitely that such funds should

be obtained from the Federal Government because of the need for young doctors for medical defense. When this scheme to obtain Federal aid was suggested at the recent Congress on Medical Education and Licensure in Chicago, the proposal was almost unanimously considered to be poorly conceived. It was felt that if the Federal funds were given for this purpose, in a very short time the Washington Government would attempt to control medical education and that bureaucratic overlords would be placed over the independent private schools who would dictate what should be taught, how it should be taught and when it should be taught, without a knowledge of any of the primary essentials of a well rounded medical school course. Furthermore, if this were done with the medical schools it would be only a step further in attempting to control and to lead the medical profession in other ways.

Again it is reiterated that at a time now when we are fighting for the future of American democracy it is an outrage that so-called plans of social betterment or what not should be evoked in the name of defense. The United States of America has enough on its hands at the present time to defend its shores, let alone to take on new, untried or half-baked experiments.

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MEDICAL CARE IN WAR

Lest it may be contended that these pages contain too much concerning the war, let it be said that at the present moment there is no more important phase of life than war in the lives of the citizens of the United States and medical men in this country. Every endeavor should be made in these war times to submerge all other interests in the common good and common welfare. If the war cannot be won it will be the ruination of the people of this country and particularly the physicians who have evolved a method of practice which is quite contrary to totalitarian forms of government. It behooves each and every one of us physicians to do our utmost to win the war. The medical profession has never failed in times of war to do what is right and proper. In the last war there were over thirty-three thousand doctors from civil life in an army of some six and a half million men. At the present time there are some fourteen thousand physicians in the army, which number will have to be increased in a very short time by at least ten thousand additional doctors. Their departure will leave tremendous holes in the fabric of civil population. The civilians must receive medical care and it must be done by many fewer physicians than are now engaged in the practice of medicine.

The Procurement and Assignment Services through the state chairmen, in the instance of Louisiana it being Dr. C. G. Cole, are attempting to see that doctors are supplied not only to the Army but that communities will have adequate medical care and that the various defense programs in industry will not lack physicians. Already in some states the set up has been practically completed. In other states for various reasons the program has fallen far behind.

The physician who, on account of physical disability or on account of age, cannot get into the Army, will have a tremendous responsibility thrown upon his shoulders. He will have to do a greater amount of work probably than he has ever done before. The physician in a smaller community must not feel that his time should be devoted entirely to the care of the sick. There are certain definite defense plans which will have to be consummated. One of the secrets, it is said, of the success of England in adjusting herself so satisfactorily to war conditions is because the country is set up in small units; each one is a self-contained organization in which the physician is in most instances the important agent. In these small units have been set up casualty stations and ambulance corps while hospital arrangements have been made for the care of sick or wounded. These smaller units are functioning excellently. These should prove a model to the smaller towns and villages in the United States. Because a doctor in the community is usually the outstanding citizen on him will fall the burden of making many arrangements, far removed from his usual

peacetime activities. He will have to lead and he will have to guide. The leadership cannot be a phone leadership; results will be accomplished not by telephoning to Baton Rouge or Washington but by self-sufficiency, self-reliance and self-dependence.

CHEMOTHERAPEUSIS OF BACTERIAL MENINGITIS

The sulfonamide drugs have profoundly affected the treatment of disease conditions due to bacteria. It is said that at Pearl Harbor the war wounds inflicted on the fateful seventh day of December, very promptly yielded to sulfonamide treatment so that within ten days or two weeks infected wounds were virtually non-existent, a tremendous contrast to the experiences of the last war. In the treatment of specific bacterial disease entities, the results have been spectacular, particularly in the management of patients with pneumonia and in patients who suffer from meningitis. A comment in the New Yorker illustrates how widespread is the knowledge of the decreased mortality from infectious diseases. A gentleman addressed a glum faced undertaker —he asked him the cause of his glumness and the answer was, "business is bad—sulfanilamide."

In the treatment of meningococcic meningitis it has been found that sulfathiazole and sulfapyridine alone have given better results than the treatment of the patient with antiserum and chemotherapeutic agents. Figures have been published which show that in pre-sulfonamide days the fatality per cent of meningococcic meningitis has been as high as 45 and in some places even higher, whereas the results with sulfathiazole alone in a small series of cases, 70, the fatality was only 4.3 and in a larger series of cases when sulfapyridine was given alone, of 384 patients only 23 died, a death rate of slightly less than 6 per cent. Of course it must be borne in mind that these drugs have been used alone in most instances when the disease has not been overwhelming and when the patient has not shown a failure to recover promptly. In other words, in more serious cases when the sulfonamide therapy has not been efficacious the patients have also been given type-specific antiserum or antitoxin. The concept of no longer using spinal drainage in treating meningitis has become widespread and this method of giving specific serum into the spinal canal has been almost completely swept away in the light of the newer knowledge concerning the treatment of the disease. Another new development in the use of sulfonamide preparations is to give them prior to an operation which might be followed by meningitis. In other words, the operator on the paranasal sinuses, mastoids or the middle ear, gives sulfanilamide one or two days preceding operation in order to prevent meningitis. It is also customary to give sulfanilamide when there is fracture of the base of the skull in order to kill off bacteria which may contaminate the meninges.

In the active treatment of meningococcic meningitis preliminary puncture of the spinal canal is done for diagnostic purposes. Depending upon the type of organism found present will be the selection of a sulfonamide preparation. The literature would show that sulfathiazole and sulfapyridine and possibly sulfadiazine are the most successful in the treatment of meningococcic meningitis; sulfanilamide in streptococcic meningitis; sulfapyridine and sulfadiazine in the pneumococcic type of the disease; sulfanilamide in influenzal meningitis, and sulfapyridine and sulfadiazine in staphylococcic involvement of the meninges. Large doses of the drug should be started promptly and continued until the patient makes a clinical recovery, as guided by the temperature chart, and late in the course of the disease, spinal puncture. Especially is it to be emphasized that the drug is to be given early in large doses and no halfway measures taken. Unsuccessful treatment has resulted time and again from hesitancy in giving the drug in ample amounts and then later on increasing the dose, by which time exudate may hinder the passage of the drug freely into the cerebrospinal fluid, or there is the formation of substances, proteolytic in nature, which inhibit the action of the

sulfonamides. On account of the danger of kidney blockage, an equal part, gram for gram, of sodium bicarbonate should be given with the sulfapyridine or sulfathiazole. The dose of sulfapyridine or sulfathiazole on the first day should be 9 grams for adults, with a proper proportionate reduction for the child or infant, and thereafter 6 grams a day. Inability to take the drug by mouth is an indication to give the drug parenterally.

It may be necessary to do lumbar puncture in the more severe types of meningitis in order to relieve the symptoms of increased intracranial pressure and also to withdraw from the spinal canal the sulfanilamide inhibiting agents. This is a matter for clinical judgment and no hard and fast rule can be laid down.

In the management of meningitis due to pneumococcus and *Haemophilus influenzae*, both of which have been in the past almost invariably fatal, the sulfonamides should be supplemented by type-specific serum. The new rabbit antiserum is used intravenously in the treatment of influenzal type of meningitis plus the sulfonamides. In the pneumococcic cases it is advisable to use the antitoxin intravenously, or the specific serum, together with the appropriate sulfonamide preparation.

Sulfanilamide therapy is never free from danger but in meningitis there exists an infection which is so fatal that desperate measures must be taken. Agranulocytosis and anuria are the only toxic expressions of sulfonamide therapy which would require the stoppage of the drug. It goes without saying that measures other than administering chemical agents must also be taken, such as adequate fluid intake, possibly small transfusions, ample calories and careful nursing.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

CHARITY HOSPITAL
New Orleans

The regular monthly meeting of the medical section of Charity Hospital Visiting Staff was held on Tuesday, February 17, in the auditorium of the hospital. The scientific program consisted of a presentation by Dr. Grace A. Goldsmith of a patient who exhibited "An Unusual Blood Dyscrasia." Dr. M. E. St. Martin gave a case report of "Renal Failure in Diabetic Coma." The last presentation on the program was that of Dr. Norton W. Voorhies entitled "Alkaligenes Fecalis Bacteriemia—Case Report."

J. T. NIX CLINIC
New Orleans

At a staff meeting of the J. T. Nix Clinic in February, 1942, the following article by James T. Nix, Jr., M. D., and Rosary Nix, M. A., was presented. The cases cited were attended by the staff of the Clinic.

PNEUMATIC COLOSTOMY PLUG

A pneumatic colostomy plug, based on the Bardex balloon catheter, is recommended for permanent and temporary colostomies, to be used especially during the day when the patient is active. The Bardex balloon catheter was originally designed for retention enemas.

Method of Application: The Bardex balloon catheter, ligated with twine at the tip, is inserted into the colostomy opening. The balloon is inflated with 30 c. c. of air and by means of a slight traction drawn up to occlude the stoma. A few thicknesses of plain dry gauze are placed around the catheter on the skin of the abdominal wall. A rubber ring about three inches in diameter and an abdominal binder maintain the catheter in place and prevent its extrusion by peristalsis. The rubber ring can be quickly and easily made from a piece of sheet rubber one-fourth of an inch in thickness.

For colostomies with small stomas, an improvised plug is made by passing a No. 16 French catheter into a finger cot and tying the open end of the finger cot around the catheter about one and one-half inches from the tip. In order to tie the finger cot tightly without compressing the lumen of the catheter, a narrow tube of brass about three-eighths of an inch long is inserted into the catheter at the site of the tie. Vulcanizing, of course, would be preferable but entails much time, trouble and expense.

Conclusion: The pneumatic colostomy plug is not a panacea but merely an adjunct to diet and irrigation. Changes in its design are now being perfected.

CASE NO. 1

M. H., was a white male, 41 years of age, who had arrested pulmonary tuberculosis, multiple tu-

berculous fistulae in ano, recurring perirectal and peri-anal abscesses, septic temperature for one year.

Operation: Devine colostomy, July 29, 1941; site of incision: longitudinal incision above umbilicus, two inches to the left of median line.

Result: Drainage from sinuses has almost entirely disappeared. Patient has gained 25 pounds; his temperature has been normal for three months.

Apparatus: Pneumatic colostomy plug (Bardex balloon catheter) has given complete satisfaction and control. Colostomy bag, pad and other devices were employed unsatisfactorily.

CASE NO. 2

M. A., was a white female, 63 years of age, who had acute intestinal obstruction, cause undetermined.

Operation: Exploratory laparotomy, colostomy above obstruction, July 30, 1941; size and site of incision: midline incision above umbilicus four inches in length.

Result: Restoration of health.

Apparatus: Pneumatic colostomy plug improvised from finger cot has given complete satisfaction and control. Colostomy bag, pad and other devices were employed unsatisfactorily.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

March 2. New Orleans Graduate Medical Assembly.

March 3. New Orleans Graduate Medical Assembly.
Eye, Ear, Nose and Throat Staff, p. m.
Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.

March 5. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Joint Scientific Meeting Orleans Parish Medical Society with the New Orleans Graduate Medical Assembly, Hutchinson Auditorium, 8 p. m.

March 6. Board of Directors, Orleans Parish Medical Society, 8 p. m.

March 9. Orleans Parish Medical Society, 8 p. m.

March 11. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.

March 16. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

March 17. Charity Hospital Medical Staff, 8 p. m.

March 18. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

March 19. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 20. I. C. R. R. Hospital Staff, 12:30 p. m.
New Orleans Hospital and Dispensary for Women and Children Staff, 8 p. m.

March 24. Baptist Hospital Staff, 8 p. m.

March 25. Clinico-pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.

March 26. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

March 27. L. S. U. Faculty Club, 8 p. m.

During the month of February the Society held one regular scientific meeting. The program was as follows:

SYMPOSIUM ON ANESTHESIA

a. Choice of Anesthesia—By Dr. John Adriani.
b. Anesthesia in Heart Disease—By Dr. Willard R. Wirth.
c. Anesthesia in Obstetrics—By Dr. Merrill C. Beck.

NEWS ITEMS

Dr. Jules Myron Davidson was recently reelected District Deputy Grand Consul of Phi Delta Epsilon Fraternity.

Dr. H. J. Schattenberg was recently elected to fellowship in the American College of Physicians.

Dr. John M. Whitney was elected to the board of directors of the Kiwanis Club at a recent meeting of this organization.

At the annual installation meeting of the Hotel Dieu, held January 19, the following officers were installed: Dr. H. Theodore Simon, president; Dr. George Taquino, vice-president; Dr. John G. Men-

ville, secretary; Drs. Lucy Scott Hill, O. C. Cassegrain, Frank Chetta, L. A. Fortier, Carlos J. Tripoli, Sidney L. Charbonnet, Jr., and Daniel J. Murphy, additional members to the board.

Drs. W. A. Wagner, H. F. Brewster and John T. Crebbin were recently elected members of the executive committee of the Eye, Ear, Nose and Throat Hospital.

TREASURER'S REPORT

Bank Balance, December 31, 1941	$5,750.03
January Credits	4,170.51
Total Credits	$9,920.54
January Expenditures	$2,383.80
Actual Book Balance, January 31, 1942	$7,536.74

Edwin L. Zander, Secretary

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

IMPORTANCE OF THE 1942 ANNUAL MEETING

The Annual Meeting of the Louisiana State Medical Society is of unusual importance to the entire membership this year. Due to the present national emergency the organization is confronted with more momentous problems than ever before and therefore the House of Delegates will have before them matters of very unusual importance and matters calling for collective judgment of those best acquainted with these subjects. The State Medical Society is truly a democratic organization and the desires and purposes of the individual members are expressed by the representatives of the various component societies, in the House of Delegates. In view of these facts it is essential that delegates be elected and information concerning such election be sent to the office of the secretary-treasurer immediately so that appropriate credentials may be furnished for the delegates.

The scientific program, from all indications, will be very worthwhile and there will be several outstanding out-of-state speakers on the program in addition to presentations by some of our most capable members. Your approval or disapproval of this program is best evidenced by your attendance.

Many scientific exhibits have been secured from members of the Society and doctors who have not yet made application for space are asked to do so at once.

The commercial houses which have had exhibits at the meetings in past years have been most loyal in applying for space for the meeting this year and interest and appreciation should be shown these firms by our entire organization.

A synopsis of the program will be carried in the April issue of the Journal.

The Orleans Parish Medical Society, host to the 1942 meeting, has been very active in making plans for this convention and you are assured of a meeting which will prove very beneficial from a scientific viewpoint and socially most enjoyable.

AMERICAN COLLEGE OF SURGEONS TO MEET IN CHICAGO

Because of the war, the thirty-second annual Clinical Congress of the American College of Surgeons will be held in Chicago, October 19-23, instead of in Los Angeles as originally planned. Headquarters will be at the Stevens Hotel. The twenty-fifth annual Hospital Standardization Conference sponsored by the College will be held simultaneously. The programs of both meetings will be based chiefly on wartime activities as they affect surgeons and hospital personnel in military and civilian service.

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

The general features of the program for the coming Congress which will be held in St. Louis, April 6-10, may be announced as follows:

The morning sessions will be divided into two periods from 9:30 to 11 and 11 to 12. The more formal presentations will appear in the first period.

Monday morning at 11 o'clock there will be a general "Obstetric Information Please", based on the well known quiz program and presided over by a moderator and four experts. This will be repeated on Wednesday morning, for shock and

hemorrhage; and Friday, on economics. Clinical conferences on genital infections will be held Tuesday morning at 11 and Thursday morning on "How Not to Treat Carcinoma." During the afternoons various groups will present formal programs devoted to nursing, public health, and hospital administration, among which will be certain combined programs.

A special feature of this Congress will be a daily consultation service at 3:30. About 50 nationally known physicians will make themselves available for fifteen-minute consultations through a registration system by individual practitioners who may desire such advice in their specific problems.

Practical demonstrations are scheduled in the scientific exhibit area on manikin deliveries, home care technic, and blood transfusions. Details of programs of other sections will appear shortly.

Further information is available at the Central Office of the Congress at 650 Rush Street, Chicago. Hotel reservations should be made directly and at an early date. Physicians, nurses, public health administrators, educators, and hospital administrators are urged to send in their registration fee of $5.00.

George W. Kosmak, M. D.,
Chairman, Professional Publicity.

SOUTHEASTERN SURGICAL CONGRESS

The thirteenth annual session of the Southeastern Surgical Congress will be held in Atlanta, March 9-11. A list of prominent doctors, whose names are known nationally, will present the program. Further information concerning this surgical congress may be obtained from Dr. B. T. Beasley, 701 Hurt Building, Atlanta, Georgia.

NEWS ITEMS

A memorial meeting to honor the memory of Dr. William D. Cutter, former secretary of the Council on Medical Education and Hospitals of the American Medical Association, was held in the Assembly Hall of the American Medical Association on Monday, February 16. Dr. Ray Lyman Wilbur spoke on "Cutter, the Medical Administrator"; Dr. Charles Gordon Heyd, on "Cutter, the Medical Educator" and Father Schwitalla on "Cutter, the Man."

Passed Assistant Surgeon William Hyatt Gordon has been relieved, New Orleans, La., and ordered to U. S. Marine Hospital, Boston, Mass., for duty.

PHYSICIANS WANTED

A large industrial plant near Shreveport, Louisiana, has requested the assistance of two physicians to become part of their regular staff in conducting medical examinations on new employees, and caring for minor industrial injuries. Physician must have completed internship and should have had one or two years of private practice. The duration of this assignment is permanent and pays a salary of $400.00 a month.

For further information communicate with—
Mr. B. H. Day, Manager, or
Mr. J. S. Moonan, Senior Interviewer,
United States Employment Service,
127 Elks Place, New Orleans, La.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Atlantic City, N. J., by the entire Board, from Wednesday, June 3, through Tuesday, June 9, 1942, prior to the opening of the annual meeting of the American Medical Association.

Application for admission to Group A, Part II, examinations must be on file in the Secretary's Office not later than March 1, 1942. It will greatly facilitate the work of the Board if applications are filed as far as possible in advance of the closing date for their receipt.

Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates.

Candidates for *reexamination* in Part II must make written application to the Secretary's Office before April 15, 1942, 1015 Highland Bldg., Pittsburgh, Pa.

PROCUREMENT AND ASSIGNMENT SERVICES

Central Organization Office of Defense Health and Welfare Services and Directing Board: Dr. Frank H. Lahey, Chairman, President, American Medical Association, 605 Commonwealth Avenue, Boston; Dr. Harvey B. Stone, Vice Chairman, Associate Professor of Surgery, Johns Hopkins University School of Medicine, 18 West Franklin Street, Baltimore; Dr. C. Willard Camalier, Chairman, Dental Preparedness Committee, American Dental Association, 1726 Eye Street N. W., Washington, D. C.; Dr. Harold S. Diehl, Dean of Medical Sciences, University of Minnesota, Minneapolis; Dr. James E. Paullin, 384 Peachtree Street N. E., Atlanta, Ga.; Dr. Sam F. Seeley, Executive Officer.

Corps Area Committee: Chairman—Dr. Edgar Greene, 478 Peachtree Street N. E., Atlanta, Ga.; Physicians—Dr. Alfred A. Walker, 2250 Highland Avenue, Birmingham, Ala.; Dr. Edward H. Jelks, P. O. Box 1018, Jacksonville, Fla.

Louisiana. Medical—Dr. C. Grenes Cole, 921 Canal Street, New Orleans. Dental—Dr. Larry Dupuy, 837 Maison Blanche Building, New Orleans. Veterinary Medical—Dr. E. P. Flower, Box 24, Baton Rouge.

Mississippi. Medical—Dr. T. M. Dye, Box 295, Clarksdale. Dental—Dr. George P. Evans, Stand-

ard Life Building, Jackson. Veterinary Medical—Dr. E. S. Brashier, State Vet. & Exec. Off., Mississippi State Live Stock San. Bd., Jackson.

HEALTH OF NEW ORLEANS

The Bureau of the Census, U. S. Department of Commerce, has reported for the week ending January 10, there were 179 deaths in the City as contrasted with 164 in the previous week. These deaths were divided between the two races, 124 white and 55 negro. Ten of the deaths were in children under one year of age. For the following week which came to a close on January 17, there was a fairly marked drop in the number of people expiring this week. Of the 147 deaths, 96 were in negroes, 51 in whites. Eleven of these were in infants under one year of age. For the week which closed January 24, there was a still further reduction in the number of deaths in the City, the figures falling to 138, divided 92 white, 46 negro, with 15 infant deaths. There were 19 more deaths in the City for the week closing January 31. The 99 white deaths, 58 negroes, and the 13 infants made up a total of 157 demises in the City this week. There was a very sharp drop in the number of deaths in the week ending February 7, only 122 New Orleans citizens expiring this week, divided proportionately about equally between the two races. There were 79 white deaths and 43 negroes. Nine deaths were in infants in this particular week.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health shows that for the week ending January 10, there were 166 cases of gonorrhea reported. Other diseases in figures greater than 10 include, 143 of syphilis, 38 of lobar pneumonia, 28 of chancroid, 20 each of mumps and chickenpox, 14 of pulmonary tuberculosis, and 13 each of measles and diphtheria. Most of the cases of chancroid, and many of those of gonorrhea, were reported from army camps. Rather interesting that this week there were listed 9 cases of typhus fever, five of which originated in Lincoln, two in Madison, and one each in Orleans and Rapides Parishes. The following week which terminated January 17, syphilis as usual lead the list of reportable diseases with 187 instances, followed by 52 of gonorrhea, 35 of mumps, 24 of pneumonia, 20 of measles, 17 of pulmonary tuberculosis, 10 of diphtheria. Two cases of typhus fever were reported this week, and eight of typhoid fever, five of the latter coming from DeSoto Parish. For the week which closed January 24, diseases reported in numbers greater than 10 include, 168 cases of syphilis, 45 of gonorrhea, 30 of chickenpox, 24 of measles, 28 of pulmonary tuberculosis, 20 of lobar pneumonia, 15 of mumps, 13 of typhoid fever, and 11 of diphtheria. Seven of the typhoid fever cases originated in DeSoto Parish, and five in Terrebonne. Poliomyelitis which had not been reported for some weeks was found in one instance to occur in Claiborne Parish and another in Rapides Parish. There were five cases of typhus fever listed this week. For the week which closed January 31, there were listed 421 cases of syphilis, 85 of gonorrhea, 53 of acute pneumonia, 39 of measles, 36 of mumps, 24 of chickenpox, 23 each of chancroid and pulmonary tuberculosis, 15 of diphtheria, and 10 of hookworm. There were four cases of typhoid fever reported this week from Rapides Parish, and only two others from scattered parishes in the State. One case of typhus fever was listed. The totals for this week were relatively high due to the fact that many of the contagious and reportable diseases were reported from army camps. For example, 19 cases of acute lobar pneumonia, 17 of mumps, 14 of chancroid, and 36 of gonorrhea were reported from the camps. For the first week of the month of February, which closed February 7, there were listed 257 cases of syphilis, 47 of measles, 34 of gonorrhea, 29 of lobar pneumonia, 24 of influenza, 21 of pulmonary tuberculosis, 14 of diphtheria, 12 of chickenpox, and 11 of mumps. The army camps reported a few infectious diseases in this week, and of the group of unusual diseases there were no more than one or two instances anywhere in the State.

THE NEW HEALTH BUILDING

Dr. C. L. Mengis, President of the Louisiana State Board of Health, announces that bids for contract to construct a $348,000 office building in Baton Rouge will be open March 12. This board of health building will contain the central laboratories of the State Department of health, including the biological and chemical laboratories. In addition to the laboratories, there will be office space for all the division and section heads and for their departments. The building is expected to be completed in about a year. It will be immediately back and to the left of the building of the State Highway Department. The building will be simple in architecture, but dignified and handsome.

In addition to this particular building, plans will be drawn and bids asked very shortly for the health centers in Alexandria and Shreveport, to cost $100,000. At Leesville, DeRidder, Lake Charles and Lafayette unit buildings, for which plans have already been drawn and space allotted by the Police Jury, will be somewhat smaller and cost $30,000; $15,000 units will be built at Crowley and Natchitoches, and somewhat smaller ones at Winnfield, Marksville, Ville Platte, Glenmora, Lecompte, Colfax, Bunkie, Oakdale, Jena, Fillmore, Plain Dealing and Elm Grove. These buildings will house the parish health units, and will provide ample space for offices, small laboratories, and clinics. All of these health centers are in so-called defense areas of the State.

WOMAN'S AUXILIARY
Louisiana State Medical Society

OFFICERS

President—Mrs. Aynaud Hebert, New Orleans.

President elect—Mrs. Clarence B. Erickson, Shreveport.

First Vice-president—Mrs. H. O. Barker, Alexandria.

Second Vice-president—Mrs. Cecil O. Lorio, Baton Rouge.

Third Vice-president—Mrs. B. L. Cook, Minden.

Fourth Vice-president—Mrs. R. W. O'Donnell, Monroe.

Treasurer—Mrs. Daniel J. Murphy, New Orleans.

Recording Secretary—Mrs. Rhodes Spedale, Plaquemine.

Corresponding Secretary—Mrs. Charles R. Hume, New Orleans.

The Mid-Year Executive Board meeting of the Woman's Auxiliary to the Louisiana State Medical Society was held on Wednesday, February 4, at the New Orleans Country Club at 10:30 a. m. with the President, Mrs. Aynaud F. Hebert, presiding. There were twenty-four members present. Interesting reports were given by the officers, parish presidents, chairmen and councilors attending and reports of the absentees were placed on file.

All of the State Projects have been supported by the parish groups. The Indigent Widows Fund which was discussed at the Post-Convention board meeting, as a new State Project and voted upon subject to the approval of the State Advisory Council, was brought up and a detailed explanation in regard to the purpose and function of this fund followed. The president stated that the Advisory Council had approved and a vote of ratification followed. Mrs. Hebert then announced an anonymous gift of $25.00 to this fund. The Project was later ratified by the State Board.

In the report of the Chairman of Entertainment for men in service, the need of a portable radio for the use of men convalescing in the hospital of Camp Polk, was made known. It was suggested that several of the interested auxiliaries pool their contributions and purchase one. The suggestion was well taken and the parish presidents present promised to take this recommendation to their organizations. The president said that the National Auxiliary is constantly urging all state and parish groups to do as much for National Defense as possible and stressed the important part which we as auxiliary members can and should take in all phases of health work so necessary in the present crisis.

Mrs. Hebert asked that each parish auxiliary make a small contribution to the Jane Todd Crawford Memorial Fund stating all money contributed to this fund is now being placed in Defense Bonds.

It is impossible to give the details of each report for time and space do not permit, but all of the chairmen are doing their part to make this auxiliary year a successful one. In addition to the aforementioned projects particular stress is being placed on Red Cross work, Health projects and Public Relations.

March 30 is Doctors' Day and the chairman of this project has written to all of the parish auxiliaries urging them to commemorate the day with some appropriate celebration.

The president has visited the following auxiliaries: Rapides, Terrebonne, Second District, East Baton Rouge, Shreveport, Natchitoches, Iberville, Lafourche, St. Landry, Tangipahoa and Orleans, and to all she wishes to express her sincerest thanks for their very generous hospitality.

The State Meeting will be held in New Orleans as scheduled, April 27-30. An interesting program is being planned and copies of same will be sent to all auxiliary presidents within a short time. Many urgent and important matters will be brought up during the convention and it is essential that all of you who possibly can attend.

The Orleans Parish Auxiliary extends a most cordial invitation to all auxiliary members throughout the state to come to New Orleans on the above mentioned dates.

Haddon Hall will be the headquarters for the Annual Meeting of the Woman's Auxiliary to the American Medical Association, which will be held in Atlantic City, New Jersey, June 8-12, 1942.

Respectfully submitted,

Mrs. Jules Myron Davidson,
Chairman, Press and Publicity.

BOOK REVIEWS

The Blood Bank and the Technique and Therapeutics: By Robert A. Kilduffe, A. B., A. M., M. D., F. A. S. C. P., and Michael DeBakey, B. S., M. D., M. S., F. A. C. S. St. Louis, Mo., C. V. Mosby Company, 1942. Pp. 558, pl. illus. Price, $7.50.

There are many reasons why we greet this book with unusual satisfaction. First, because after a rapid glance over its 558 pages and a view of its 218 illustrations, this reviewer is satisfied that it is all and much more than its authors and publishers claim for it. Furthermore, it is pleasing to us that so large a part of the authorship of this fine work and of its pictorial features is the product of the combined literary industry of Dr. DeBakey and the artistic ability of Miss Morel, two local workers who have long attained distinction in their respective fields. The book is timely, new and crisp like a loaf still warm from the bakery. The title, "Blood Bank," which, ten years ago, could

not have been defined in any of the current lexicons, alone attests to its actuality and up-to-date modernity. The enormous value of blood transfusions in modern practice and its supreme life-saving value in counteracting the effects of shock and hemorrhage,—the dominant factors in the injuries of warfare and the accidents of civilian life,—warrant all the attention and space given to the *storage of blood*, whether bottled or canned, in refrigerated cabinets as "Blood Banks,"—or when kept alive in the circulation of duly classified and registered donors of a "Blood Donor Registry." In the evolution and rise of transfusion to its present day simplicity and efficiency, the laboratory and clinic share the merits of achievement. As shown in the 16th chapter of this book, the tasks of the laboratory (Dr. Kilduffe) and those of the clinic (Dr. DeBakey) are remarkably interlocked and well balanced. The contributions of the laboratory, indicated by the titles—"Technique of blood typing and compatability tests;" "Anomalous blood typing reactions;" "The universal donors and the universal recipients;" "The blood bank;" "Changes which occur in stored blood;" "The operations of a blood bank;" "Plasma transfusion;" "The preparation and preservation of citrated plasma;" "The preparation of the concentrated and dried plasma;" are all very clearly and ably presented by Dr. Kilduffe in about 215 pages. The historical, clinical and surgical aspects of the subject are embraced in the chapters on "History;" "Rationale;" "Indications and contraindications;" "Military aspects;" "Methods and technique of transfusion;" and "Its complications." These are readily identified with Dr. DeBakey by those who are acquainted with his historical and bibliographic tendencies and his native inventiveness,—which in this instance, is represented by two appliances—one with Gillentine,—a sleeve valve syringe, and, the other, a surgical pump for continuous flow from the donor to the recipient based on the principle of the "milking tube." When in operation the connecting rubber tube is held in a metal case where it is compressed by rollers rotated by a crank arm which projects as a handle outside of the case. When attached and "the crank arm is rotated, the rollers will successively compress the rubber tube, producing "a milking effect" thus forcing the fluid content in clock-wise direction from donor to recipient." In utilizing the milking tube in this appliance we recognize an old but highly modernized acquaintance, known in the 90's as the Allen Surgical Pump, or the "compressible rubber tube aspirator and injector," improved by Chas. Truax, the leading instrument manufacturer in Chicago, who figured it in his "Mechanics of Surgery (1899)." This reviewer used it at that time as a simple and efficient substitute for the more costly Potain and Dieulafoy pumps, in aspirating and injecting fluids and for hypodermoclysis with salt solution or other artificial sera in the treatment of shock and hemorrhage, and as "the axillary sup" in operations on exhausted and marasmic patients. This was at a time when blood transfusion was still more historical than real and when we were inaugurating *intravenous* infusions with saline and other composite artificial sera, for shock and hemorrhage at the Charity Hospital. It is remarkable that the simple principle of the "milking tube surgical pump" should have been completely forgotten for nearly forty years, only to reappear in the recent suggestions by a number of authors who have found its most useful application in the direct transfer of blood from giver to patient, and of which the instrument devised by Dr. DeBakey is the simplest and most efficient,—if we may judge by the success that has attended its use in his very large experience and that of others here and abroad.

While this book is essentially practical and meticulously detailed in all matters of technic, the historical and bibliographic aspects of the subject have not been neglected. A total bibliography approaching 3,000 references attests to the thoroughness of the library research, which, in this case, differs from many of the laborious compilations transcribed by non-medical clerks directly from the Index Medicus and the Index Catalogue for use chiefly as a pad of erudition to the text and which the authors themselves scarcely know or have never read.

Much as the bibliographic indices have been and are being disgracefully abused, owing to the facilities afforded by the enormous expansion of our library system, this charge cannot be levelled against Dr. DeBakey, who is chiefly responsible for the bibliography of this book. For anyone familiar with the literature of this subject can at once recognize the painstaking and conscientious bibliographer by the correct concordance of the references with the text and by the judicious selections of the extra-textual references in the consulting indexes, which, in this instance, have added much real value to the book.

One of the most striking and valuable features of this book is its illustrations. As previously indicated, the large majority have been drawn expressly for this text by Miss Morel, well-known artist attached to the Surgical Department of the Medical School of Tulane. The drawings, chiefly woodcuts, and linear outlines, not only illustrate every phase of the technic, but they exhibit a pictorial gallery of the great pioneers of the 16th and 17th centuries, who laid the primitive foundation for the magnificent structure that modern science has built for the practice of transfusion as this is revealed in all the plenitude of its marvelous achievements by the authors of this book.

RUDOLPH MATAS, M. D.

Laboratory Diagnosis of Protozoan Infection: By Charles Franklin Craig, M. D., M. A. (Hon.), F. A. C. S., F. A. C. P. Philadelphia, Lea and Febiger, 1942. Illus. Pp. 349. Price $4.50.

This diagnostic guide for the clinical laboratory has been written by the most distinguished authority in the field. Following a brief introduction in which the objective of the volume is presented, there are six sections, each of several chapters. The first section deals with intestinal amebae and flagellates, the second and third with the hemoflagellates (*Leishmania* and *Tryanosoma* organisms), the fourth with coccidia, the fifth with malaria plasmodia and the sixth with the ciliate protozoan, *Balantidium coli*. For each group and species of organisms there is not only a relatively complete presentation of the laboratory methods of identification, but also a "Critique of Diagnostic Methods", in which there are stated the most specific and valuable methods, as judged by the experience of the author and other competent diagnosticians.

The volume is clearly written, the material carefully selected and the information up-to-date. The author has assiduously confined himself to the subject in hand and has refrained from introducing other phases of clinical protozoology. There are 54 well-chosen illustrations, including zinc and half-tones, and four colorplates. There are nine pages of more important references, an author index and a subject index. The volume is well printed and conveniently bound. It deserves a place on the desk of every clinical diagnostician.

ERNEST CARROLL FAUST, PH. D.

Necropsy—A Guide for Students of Anatomic Pathology: By Béla Halpert, M. D. St. Louis, C. V. Mosby Company, 1941. Pp. 75. Price, $1.50.

At last a manual describing completely a single method of necropsy. Instead of half-heartedly describing a number of methods, it chooses a method which permits (most technics in this country to the contrary) the preservation of organ relationships, and enables the pathologist to dissect first the systems of communication (blood and lymph vessels, nerves, and ducts) before the essential organ pathology has been disturbed. For the pathologist and others who have not had special training in anatomy, but especially for those who have over the years developed faults in anatomic observation, this small manual comes as a refreshing tonic. It reads easily, is concise and sufficient.

ALBERT E. CASEY, M. D.

Complete Weight Reducer: By C. J. Gerling. New York. Harvest House. Pp. 246. Price $3.00.

After publishing the book entitled "Short Stature and Height Increase," Mr. Gerling felt there was a need for information on weight reduction which would expose reducing nostrums, frauds and quackery. The book is intended to be an encyclopedia, a dictionary and a guide to safe and scientific reducing. The introduction was written by Winfield Scott Pugh, B. S., M. D., retired Commander of the Medical Corps, U. S. N. He writes: "The comprehensiveness of the book is certainly remarkable. There is no phase of the subject which the author has been content to disregard."

There is perhaps a place for this book for the uninformed reducer. It points out the dangers of dinitrophenol, thyroid, benzedrine, ephedrine and other stronger medications. It considers the harmful aspects of the eighteen day diet, grape juice diet, and banana diet, and the milk and egg diet. He shows the uselessness of reducing salts, soaps, machines, electrical devices, salves and vibrators. However, in spite of this, he clings to certain aspects of weight reduction deemed "quackery" by the medical profession. He gives exercises for the reduction of a redundant chin, for the arms, legs and other parts of the body. A rotatory exercise of the foot is advocated to produce a slender ankle. The bust is reduced by circular exercise of the arms.

Nowhere is mentioned Mr. Gerling's qualifications to write on the subject. The only reference in the entire publication is to that of "Consumers Union" to which he refers repeatedly. Although he exposes much fraud in the field of weight reduction, the general tone of the book is pseudoscientific.

TRAVIS WINDSOR, M. D.

Clinical Immunology, Biotherapy and Chemotherapy: By John A. Kolmer, M. S., M. D., Dr. P. H., Sc. D., LL. D., L. H. D., F. A. C. P., and Louis Tuft, M. D. Philadelphia, W. B. Saunders Co., 1941. Pp. 941. Price $10.00.

As the authors say in their preface, the past fifteen years have been extraordinarily fruitful in the realm of infection, immunity, biotherapy and chemotherapy. As a matter of fact in the treatment of the acute infectious diseases the man who practiced the teachings of fifteen or twenty years ago, nowadays might almost be considered to be a subject for scorn. However, there is very little likelihood of this contingency arising, inasmuch as every doctor is giving patients with any type of infection one or another of the sulfonamide preparations; all types of sera and vaccines are being used routinely in the treatment of many diseases, so routinely that the man who prescribes them often does not know the why nor the wherefore. It is largely to meet this need that the present volume has been prepared.

Part I of the book, some twelve chapters, has to do with the general aspects of infection, immunity, biotherapy and chemotherapy. It is in this section that the why is explained. In the next part, in all twenty-four chapters, there is a discussion of the practical applications of immunity, biotherapy and chemotherapy in the prevention and treatment of disease.

Practitioners should note the details of Part I but would be very much more interested in Part II. More than of interest will be this section because it will teach and guide the man who only occasionally sees meningococcal meningitis or tetanus,

typhus fever or any of the unusual infectious diseases. This section tells what chemotherapeutic preparations to use, as well as what biologic preparations are valuable. Particularly to be commended is the accurate editorial limitation of the drugs and biologic preparations which may be used. The authors conservatively recommend agents when and where they should be used and definitely indicate the many infections in which they are of no value.

Another commendatory feature of the volume is the summary of diseases enclosed in a block and giving only the very essential features of the disease. In the block form the abstract of the important features of measles, for example, contains two or three lines on etiology, five lines on transmission of the disease, a few lines on immunity, three words on active immunization, mentions the prevention of the disease by passive immunization, sketches the modification produced by passive immunization and then three lines which tell what may or may not be accomplished by serum and chemotherapy. To the busy man this epitome of measles can be read in a very few minutes, or that of any other diseases, infectious in nature. The full discussion of the details of the summary may be read in the accompanying pages of the text.

It is remarkable how completely up to the minute is the book. It must have gone through the press very rapidly because the latest sulfonamide preparations are mentioned and discussed and most recent advances in therapy are incorporated somewhere in the 880 odd pages of the treatise. It would be rather difficult to see how a physician who is called upon to treat infectious diseases can get along without this really excellent compilation of the personal experiences of the authors and the experience of others in the several phases of infectious diseases pertinent to the title.

J. H. Musser, M. D.

Occupational Diseases: By Rutherford T. Johnstone, A. B., M. D. Philadelphia, W. B. Saunders Company, 1941. Pp. 558; 26 tables, 132 photographs, and 114 diagrams. Price $9.00.

Material and experiences forming the background of the book are drawn from the author's twenty-five years' work in an industrial clinic with annual admissions exceeding 10,000 patients. This clinic at the Golden State Hospital, Los Angeles, California, using the referral system of case admission, makes possible the study of a large cross section of occupational disease.

The aims of the text, as stated in the author's preface, "are to outline a basis for the diagnosis and treatment of the more common occupational diseases, to interpret the medicolegal phase and to offer from experience the expected disability." In this attempt to present the subject to fill the needs of both the general practitioner and the medical student, these aims have been achieved with a definite degree of success.

Ralph H. Heeren, M. D.

Immunity against Animal Parasites: By James T. Culbertson, Ph.D. New York, Columbia University Press, 1941. Pp. 274. Price $3.50.

This volume is not a primer of immunology or of parasitology, but rather a presentation of present day knowledge of immunologic reactions in animal parasite infections. Following a general introductory chapter dealing primarily with the historical landmarks in this relatively new field, there are successively considered in Part I the subjects of natural resistance, age resistance, acquired immunity, immune responses, the mechanisms of immunity and their demonstration. Part II deals with immunity in specific diseases, as "the amebiases" (*sic*), the leishmaniases, the trypanosomiases, the malarias, the coccidioses, the trematodiases, the cestodiases, the nematodiases, and response to arthropods. Part III, designated "Applied Immunology," discusses the classification of parasites from the viewpoint of their group immunologic reactions, vaccination, and diagnosis by immunologic tests.

On the whole the material is presented quite objectively and with satisfactory balance, considering the disparity of information in the different subject groups. It is really a concise digest rather than a manual on the subject. It should be very helpful in directing the interested reader to literature sources, the majority of which are cited in numerous footnote bibliographic references. To one primarily acquainted with the parasitic infections of the human body, it is of interest to note the large amount of immunologic investigation that has been carried on with parasites of lower animals. Many of these comparative studies provide a composite framework supporting the subject and bridging the gap between immunology in the field of bacteriology and that of animal parasites.

The text is illustrated with three charts, four tables and two plates of figures. The style is good and the typography pleasing. Factual and typographic errors are relatively few.

Ernest Carroll Faust, Ph.D.

Manual of the Diseases of the Eye: By Charles H. May, M. D. 17th ed. rev. with the assistance of Chas. A. Perera, M. D. Baltimore, Wm. Wood & Co., 1941. Pl., pp. 519. Price $4.00.

The seventeenth revision of the American edition of this textbook has been recently completed. Included are 93 colored figures and 387 illustrations. Some parts have been rewritten and additional material and illustrations have been added. Of special interest are two new color plates, one demonstrating Stilling's and Ishihara's pseudo-isochromatic plates for testing color perception and the other demonstrating Koch-Weeks and Morax-Axenfeld bacilli.

The author has shown keen foresight in presenting an appendix giving the ocular requirements for admission to the U. S. Army, Navy, Marine and Air Corps.

The most common pathologic conditions of the eye are described, and principles of treatment are discussed in a practical and comprehensive manner. Rare and less common diseases have been omitted.

The manual is, unquestionably, the best textbook on the market today for students and the best reference book for the general practitioner. It should be included in every physician's library.

While the changes in the present edition are noteworthy, it is not an essential addition to the libraries of those who possess the sixteenth edition.

GEORGE M. HAIK, M. D.

Wounds and Fractures: By H. Winnett Orr, M.D., F.A.C.S. Springfield, Ill., Chas. C. Thomas, 1941. Illus. pp. 227. Price $5.00.

This work is a clear exposition of the "Orr method" of treatment of fractures in general. A great deal of emphasis is laid upon the author's methods in caring for compound and infected fractures and wounds. As an exposition of his own results in the care of a wide fracture experience, the book is extremely interesting, although many of the author's personal opinions are at wide variance with those of other men. No mention is made of the value of the sulfonamide drugs in the care of early compound fractures or in the care of chronic infections. Insufficient emphasis is laid upon the nature and extent of the debridement necessary to ensure success with the Orr method. A good deal of experience is necessary and a degree of judgment required to use successfully transfixion pins to the same extent as Doctor Orr uses them.

In the field of simple fractures there are many opinions expressed which will not receive ready acceptance. After inserting a nail to fix a fracture of the neck of the femur, the application of a double spica using transfixion pins through the distal and proximal femoral shaft seems to defeat one main purpose of the nailing operation: early mobilization of adjacent joints, and particularly the possibility of getting the patient up and out of bed as early as possible.

The "Orr method" is still one of the great contributions made in the field of surgery, and has proved its worth beyond question of doubt. This work should be carefully studied by anyone interested in the care of traumatic wounds.

FRANK J. COX, M. D.

Trauma and Disease: Edited by Leopold Brahdy, B. S., M. D., and Samuel Kahn, B. S., M. D. 2d ed. Philadelphia, Lea and Febiger, 1941. Pp. 655, illus. Price $7.50.

The fact that this treatise on trauma and disease is now in its second edition reflects the need for such a guide volume. Few physicians stop to consider the effects of trauma on disease of the various systems of the body unless confronted by a medico-legal case. While the role of trauma may be overestimated by the layman it is frequently underestimated or neglected by the physician. This volume takes up the effects of trauma on the various systems of the body, each system being presented by a well qualified authority on the subject. In this way reliable, concise information is easily accessible plus reference to considerable bibliography on each subject. This book should be invaluable to physicians interested in medico-legal medicine and a welcome addition to any physician's library.

RANDOLPH LYONS, M. D.

Reports on Medical Progress—1939—As Published in the New England Journal of Medicine: Compiled and edited by Robert N. Nye, M. D. Boston, Little, Brown and Company, 1941. Pp. 562. Price $5.00.

Among the valuable papers in the New England Journal of Medicine are the progress reports which cover the various branches of medicine. These are written by men of eminence in their respective fields and include many practical and new facts concerning the specialities and various aspects of medicine and surgery.

These are now being put into yearly volumes so that all the valuable papers may be easily reached. Nowhere can one find such a compilation of progress articles as are present in this volume.

JOSEPH ZISKIND, M. D.

PUBLICATIONS RECEIVED

Columbia University Press, Morningside Heights, New York: Hippocratic Medicine, Its Spirit and Method, by William Arthur Heidel.

The Commonwealth Fund, New York City: Foundations for a Science of Personality, by Andras Angyal, M. D., Ph. D.

Lea & Febiger, Philadelphia: Laboratory Diagnosis of Protozoan Diseases, by Charles Franklin Craig, M. D., M. A. (Hon.), F. A. C. S., F. A. C. P., Col., U. S. Army (Retired), D. S. M. A Textbook of Neuro-Anatomy, by Albert Kuntz, Ph. D., M. D. A Hand-book of Ocular Therapeutics, by Sanford R. Gifford, M. A., M. D., F. A. C. S. Food and Beverage Analyses, by Milton Arlanden Bridges, B. S., M. D., F. A. C. P., and Marjorie R. Mattice, A. B., M. S. Clinical Hematology, by Maxwell M. Wintrobe, M. D., Ph. D.

W. B. Saunders Company, Philadelphia: Diseases of Metabolism, edited by Garfield G. Duncan, M. D.

Charles C. Thomas, Springfield, Illinois: Clinical Roentgenology of Pregnancy, by William Snow, M. D. Skin Grafting, by Earl Calvin Padgett, M. D.

The Williams & Wilkins Company, Baltimore, Md.: Nasal Sinuses, by O. E. Van Alyea, M. D.

Grune & Stratton, New York: Methods of Treatment in Postencephalitic Parkinsonism, by Henry D. von Witzleben, M. D.